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BLACK & VEATCH Waste Science, Inc.

400 Northridge Road, Suite 350, Atlanta, Georgia 30350, (404) 594-2500, Fax: (404) 587-2930

US EPA -- Region IV Site Inspections Work Assignment No. 12 BVWS Project 52012.329 August 10, 1994

Mr. Narindar Kumar Chief, Site Assessment Section U.S. Environmental Protection Agency 345 Courtland Street, NE Atlanta, Georgia 30365

Subject: Draft Site Inspection Prioritization

Kennon (Genesco) Site

Brentwood, Williamson County, TN

EPA ID No. TND981473515

Dear Mr. Kumar:

Enclosed please find one copy of the Draft Site Inspection Prioritization for Kennon (Genesco) Site in Brentwood, Williamson County, Tennessee. If you have any questions, please contact me at 404/643-2320.

Very truly yours,

Paul Moison for

BLACK & VEATCH Waste Science, Inc.

Victor Blix Project Manager

fw Enclosure

cc: Doug Thompson, EPA PO, w/o enclosures Deborah Davidson, EPA CO, w/o enclosures Earl Bozeman, EPA WAM, w/o enclosures

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E. ATLANTA, GEORGIA 30365

4WD-WPB

ATIG + 1 1994

Victor Blix Black & Veatch Waste Science, Inc. 400 Northridge Road, Suite 350 Atlanta, GA 30350

RE: Site Inspection Prioritization
Site Name: Kennon (Genesco)
EPA ID#: TND981473515

Dear Mr. Blix:

I have reviewed the SIP report on the above referenced site and made the following decision:

- X Report acceptable as is and will serve as final SIP for the site. Please send me an additional copy of the report and references.
- Site reconnaissance, additional documentation and/or HRS scoring scenarios required. See comments section for details.
- Field sampling is needed at this site. See comments section for details.
- Report needs revisions as indicated in comments section. Please revise and submit final no later than __/___.

Comments:

Send 2 copies of the final SIP.

If you have any questions regarding this matter, please contact me at 347-5059 ext. 6149.

Sincerely,

Site Assessment Manager

cc: Earl Bozeman, WAM Doug Thompson, PO Debbie Davidson, CO



(4)(4)(4)(3)(0)(65) FAX: (404) 413-6733

C-92-6-4-11

U.S. Environmental Protection Agency Kennon (Genesco) Site Work Assignment 12

July 21, 1994

Mr. Narindar Kumar, Chief Site Assessment Section U.S. Environmental Protection Agency 345 Courtland Street, N.E. Atlanta, Georgia 30365

AUG 1 1 1994

Subject:

Site Inspection Prioritization

Kennon (Genesco) Site

Brentwood, Williamson County, Tennessee

EPA ID TND981473515

W/# 472 4

Dear Mr. Kumar:

Halliburton NUS Corporation has been tasked by BLACK & VEATCH Waste Science, Inc., under U.S. Environmental Protection Agency (EPA) Contract 68-W9-0055, to conduct a Site Inspection Prioritization at the Kennon (Genesco) Site in Brentwood, Williamson County, Tennessee. In accordance with the Kennon Site scope of work, a preliminary Hazard Ranking System (HRS) score was prepared to determine the need for future activities at the site.

The Kennon Site is located off Split Log Road in a rural area east of Brentwood in Williamson County, Tennessee (Refs. 1, 2). The geographic coordinates of the site are 35°57'22" north latitude and 86°46'27" west longitude (Refs. 2, 3). The 10-acre site is located on a 150-acre tract of farmland owned by Emmett and Rose Kennon. The site is currently undergoing remediation. Phosphate was mined on the farmland property between 1972 and 1974, and one pit was left unreclaimed. In 1978, this mine pit and four additional trenches were used for the disposal of industrial wastes, consisting of organic solvents, adhesives, and organic fillers from General Adhesives, which at that time was a division of Geneso, Inc. (Ref. 4, p. 1). These contaminants included acetone, methyl ethyl ketone, toluene, 1,1,1-trichloroethane, trichloroethylene, and various other organics (Ref. 1).

The site was discovered in 1985 when Genesco officials learned of the previous disposal activity and notified the Tennessee Department of Environment and Conservation (TDEC). The State began a sampling investigation of springs an wells in the area and learned that contamination had indeed spread to a nearby spring (the Hackett Spring), and to onsite monitoring wells (Ref. 4,

Mr. Narindar Kumar U.S. Environmental Protection Agency C-92-64-11 July 21, 1994 - page two

p. 1). They then instigated remedial action at the site. The first steps were to build a silt fence to prevent contaminated sediment from leaving the property and to provide an alternate water supply to residents in the area who used private wells as their potable water source. Genesco has cooperated with the State in all actions concerning this site (Ref. 4, p. 1).

At the present time, the site is still undergoing remediation. Genesco hired Geraghty and Miller to perform the remediation tasks. A subsurface drain was designed and installed in 1989 to intercept the flow of groundwater, and the water is treated by the City of Brentwood Sewer System. Large mechanical screens were used from June 1990 to September 1991 to separate semi-solid and solid adhesive wastes from the soils. Bioremediation is also presently being performed. The site is being remediated in accordance with TDEC Order 86-3013, issued March 5, 1986 (Ref. 4, p. 1).

A preliminary HRS score for the Kennon Site was calculated using the Site Inspection Worksheets. Pathways evaluated include groundwater migration, surface water migration, soil exposure, and air migration. A worst case scenario was used to determine a maximum potential score for the site. This score reflects a waste quantity of 10 based on 800 drums of material (Ref. 1). Maximum waste characteristic values were used for all pathways.

The City of Brentwood supplies potable water to the residents in the area of the Kennon site. As previously stated, some residents were using private wells as their water source but since work began at this site, water lines have been installed (Ref. 4, p. 1). The City of Brentwood obtains water from Metro Nashville and Harpeth Valley Utilities. Both systems obtain water from intakes on the Cumberland River (Ref. 5, p. 2).

Surface water from the site flows into an unnamed intermittent stream which is actually located on site. This stream flows approximately 0.5 mile southwest until it enters the Little Harpeth River. The Little Harpeth River flows south until it empties into Clovercroft Lake (Ref. 2). The Little Harpeth River is a small to moderate stream. Flow rates are unavailable for this water body. The surface water intakes on the Cumberland River are not connected with the surface water pathway of this site (Ref. 2). There are no endangered or threatened species along the surface water pathway (Ref. 6). The Little Harpeth River is used for recreational fishing, and Clovercroft Lake is used for both recreation and fishing (Ref. 7). A topographic analysis of the vicinity identifies no wetlands (Ref. 2). However, wetland maps for this area are currently unavailable.

The Kennon site is located in a rural portion of Williamson County. The nearest city is Brentwood, approximately 1.5 miles northwest of the site. There are no schools or day-care centers within 1 mile of the site. The nearest residence is approximately 0.5 mile to the northwest (Ref. 2. The population within a 4-mile radius of the site is approximately 19,317

Mr. Narindar Kumar U.S. Environmental Protection Agency C-92-6-4-11 July 21, 1994 - page three

persons, distributed as follows: 0.5 - 1 mile: 7 persons; 1 - 2 miles: 434 persons; 2 - 3 miles: 11,707 persons, 3 - 4 miles: 7,169 persons (Refs. 2, 8, 9). One threatened plant, the Price's potato-bean (Apios priceana), and one endangered plant, the leafy prairie clover (Dalea foliosa), have been identified in Williamson County (Ref. 6).

HRS SCORING SUMMARY

Sgw = 0 Ssw = .04 Sso = 0 Sa = .07

OVERALL SCORE = 0.04

Due to low targets and ongoing remedial work, no further action is recommended for the Kennon (Genesco) site.

Attached are additional references collected during this investigation. If you have any questions or comments, please contact Victor Blix at (404) 594-2500.

Very truly yours,

Jucky Prekes tran for C Teresa Sawyer Project Manager

TS/gwb

Enclosures

cc: Philip A. Blackwell

File

REFERENCES

- 1. Potential Hazardous Waste Site, Site Inspection Report (EPA Form 2070-13) for the Kennon (Genesco) Site in Brentwood, Williamson County, Tennessee. Prepared by Thomas A. Moss, Tennessee Department of Health and Environment, Superfund Division, May 12, 1987.
- 2. U.S. Geological Survey, 7.5 minute series Topographic Quadrangle Maps of Tennessee: Franklin 1981, Nolensville 1957 (Photorevised (PR) 1979), Antioch 1968 (PR 1983), Oak Hill 1968 (PR 1983), scale 1:24,000.
- 3. Latitude and Longitude Calculation Worksheet #1 for the Kennon Site. Prepared by Teresa Sawyer, Halliburton NUS Corporation, June 7, 1994.
- 4. After-Action Report including Air Monitoring Program, Water Monitoring Program, and Site Security Program for the Kennon Site in Brentwood, Tennessee. Prepared by Mosley and Associates, Inc., January 1993. Revised December 1993.
- 5. Brenda Apple, Tennessee Department of Environment and Conservation, Superfund Division, Public Drinking Water Systems in Middle Tennessee, December 18, 1992.
- 6. U.S. Fish and Wildlife Service, <u>Endangered and Threatened Species of the Southeastern United States</u> (Atlanta, Georgia). 1993.
- 7. James Brian, Tennessee Wildlife Resources Agency, telephone conversation with Teresa Sawyer, Halliburton NUS Corporation, June 13, 1994. Subject: Fishing and recreation near the Kennon site.
- 8. U.S. Environmental Protection Agency, <u>Graphical Exposure Modeling System (GEMS)</u>
 <u>Data Base</u>. Compiled from U.S. Bureau of the Census (1980).
- 9. Teresa Sawyer, Halliburton NUS Corporation, memorandum to file for Kennon Site, June 13, 1994. Subject: Population of the City of Brentwood.

Location: Brentwood, Williamson County, Tennessee

GROUND WATER MIGRATION PATHWAY SCORESHEET

FACTOR CATEGORIES AND FACTORS

	Likelihood of Release to an Aquifer	Maximum Value	Value Assigned
1. 2.	Observed Release Potential to Release	550	550
۷.	2a. Containment	10	_
	2b. Net Precipitation	10	
	2c. Depth to Aquifer	5	
	2d. Travel Time	35	
	2e. Potential to Release	33	
	[lines $2a \times (2b + 2c + 2d)$]	500	-
3.	Likelihood of Release (higher of		
	lines 1 or 2e)	550	<u>550</u>
	Waste Characteristics		
4.	Toxicity/Mobility	a	10
5.	Hazardous Waste Quantity	a	10
6.	Waste Characteristics	100	3
	Targets		
7.	Nearest Well	50	0
8.	Population		
	8a. Level I Concentrations	Ь	0
	8b. Level II Concentrations	ь	0
	8c. Potential Contamination	b	0
_	8d. Population (fines 8a + 8b + 8c)	b	0
9.	Resources	5	0
10. 11.	Wellhead Protection Area	20 b	0
1 1.	Targets (lines $7 + 8d + 9 + 10$)	d	
	Ground Water Migration Score for an A	<u> quifer</u>	
12.	Aquifer Score		
	[(lines 3 x 6 x 11)/82,500] ^c	100	0
	Ground Water Migration Pathway Scor	<u>e</u>	
13.	Pathway Score (S _{GW}), (highest value fro		
	line 12 for all aquifers evaluated) ***	100	0

Maximum value applies to waste characteristics category.

b Maximum value not applicable.

c Do not round to the nearest integer

Location: Brentwood, Williamson County, Tennessee

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET

	Factor Categories and Factors	Maximum Value	Value Assigne	ed
DRIN	IKING WATER THREAT			
	<u>Likelihood of Release</u>			
1. 2.	Observed Release Potential Release by Overland Flow	550	0	
	2a. Containment2b. Runoff2c. Distance to Surface Water	10 25 25	10 1 6	
3.	2d. Potential to Release by Overland [lines 2a x (2b + 2c)] Potential to Release by Flood	500	<u>70</u>	
	3a. Containment (Flood)3b. Flood Frequency3c. Potential to Release by Flood	10 50	<u>10</u> 0	
4. 5.	(lines 3a x 3b) Potential to Release (lines 2d + 3c, subject to a maximum of Likelihood to Release (higher of lines 1		<u>0</u> 70	70
Э.	Waste Characteristics	i and 4) 550		
6. 7. 8.	Toxicity/Persistence Hazardous Waste Quantity Waste Characteristics	a a 100	<u>4.0</u> 10	2
	Targets			
9. 10.	Nearest Intake Population 10a. Level I Concentrations 10b. Level II Concentrations 10c. Potential Contamination 10d. Population (lines 10a + 10b + 1	50 b b b	0 0 0	
11. 12.	Resources Targets (lines 9 + 10d + 11) <u>Drinking Water Threat Score</u>	5 b	0	5
13.	Drinking Water Threat Score ([lines 5 x 8 x 12]/82,500, subject to a maximum of 100)	100	-	0.01

Maximum value applies to waste characteristics category.

Maximum value not applicable.

c Do not round to nearest integer.

Location: Brentwood, Williamson County, Tennessee

SURFACE WATER, OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET (continued)

	Factor Categories and Factors	Maximum Value	Value Assign	ned			
HUM.	HUMAN FOOD CHAIN THREAT						
	<u>Likelihood of Release</u>						
14.	Likelihood of Release (same value as line	5) 550		70			
	Waste Characteristics						
15.	Toxicity/Persistence/Bioaccumulation	а	2 x 10 ⁴				
16. 17.	Hazardous Waste Quantity Waste Characteristics	a 1,000	10	<u>18</u>			
	<u>Targets</u>						
18.	Food Chain Individual	50	0				
19.	Population 19a. Level! Concentrations	Ь	0				
	19b. Level II Concentrations	b					
	19c. Potential Human Food Chain	•	•				
	Contamination 19c. Population (lines 19a + 19b + 19c	b) b	2				
20.	Targets (lines 18 + 19d)	., 3		2			
	Human Food Chain Threat Score						
21.	Human Food Chain Threat Score						
	([lines 14 x 17 x 20]/82,500,						
	subject to a maximum of 100)	100	_	0.03			
ENVIE	RONMENTAL THREAT						
	<u>Likelihood</u> of Release						
22.	Likelihood of Release (same value as line	5) 550		<u>70</u>			
	Waste Characteristics						
23.	Ecosystem Toxicity/Persistence/Bioaccum	nulation a	<u>2 x 10</u> 4				
24.	Hazardous Waste Quantity	a	<u>10</u>				
25. 26.	Waste Characteristics Sensitive Environments	1,000		<u>18</u>			
20.	26a. Level I Concentrations	b	0				
	26b. Level If Concentrations	b	0				
	26c. Potential Contamination	b	0				
	26d. Sensitive Environments						
	(lines 26a + 26b + 26c)	b	0				

Maximum value applies to waste characteristics category.

b Maximum value not applicable.

c Do not round to nearest integer.

Location: Brentwood, Williamson County, Tennessee

SURFACE WATER, OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET (concluded)

	Factor Categories and Factors	Maximum Value	Value Assigned
	<u>Targets</u>		
27.	Targets (value from line 26d)		0
	Environmental Threat Score		
28.	Environmental Threat Score ([lines 22 x 25 x 27]/82,500, subject to a maximum of 60)	60	0
SURF	ACE WATER OVERLAND/FLOOD MIGRAT	ION COMPONENT SCO	RE FOR A WATERSHED
29.	Watershed Score ^c (lines $13 + 21 + 28$, subject to a maximum of 100)	100	0.03
SURF	ACE WATER OVERLAND/FLOOD MIGRAT	ION COMPONENT SCO	RE
30.	Component Score (S _{OF}) ^c (Highest score f line 29 for all watersheds evaluated, subject to a maximum of 100)	rom 100	0.03

a Maximum value applies to waste characteristics category.

b Maximum value not applicable.

c Do not round to the nearest integer.

Location: Brentwood, Williamson County, Tennessee

SOIL EXPOSURE PATHWAY SCORESHEET

	Factor Categories and Factors	<u>Maximum Value</u>	Value Assigned			
RESIDENT POPULATION THREAT						
	Likelihood of Exposure					
1.	Likelihood of Exposure	550	<u>550</u>			
	Waste Characteristics					
2.	Toxicity	а	<u>10</u> 4			
3.	Hazardous Waste Quantity	a	<u>10</u>			
4.	Waste Characteristics	100	18			
	Targets					
5.	Resident Individual	50	0			
6.	Resident Population					
	6a. Level I Concentrations	b	0			
	6b. Level II Concentrations	b	0			
	6c. Resident Population		^			
_	(lines 6a + 6b)	b 15	0			
7.	Workers	15	0			
8.	Resources Terrestrial Sensitive Environments	5	- 0			
9. 10.	Targets (lines $5 + 6c + 7 + 8 + 9$)	c b	0			
10.	raiges (mies 5 1 oc 17 1 o 1 5)	b				
	Resident Population Threat Score					
11.	Resident Population Threat					
	(Lines 1 x 4 x 10)/82,500	b	0			
NEAF	RBY POPULATION THREAT					
	Likelihood of Exposure					
12.	Attractiveness/Accessibility	100	5			
13.	Area of Contamination	100	<u>5</u> <u>8</u>			
14.	Likelihood of Exposure	500				
	Waste Characteristics					
15.	Toxicity	3	104			
16.	Hazardous Waste Quantity	a a	10			
17.	Waste Characteristics	100	18			
17.	Trasca di la lacci locies	,00				

Maximum value applies to waste characteristics category.

b Maximum value not applicable.

c Do not round to the nearest integer.

Location: Brentwood, Williamson County, Tennessee

SOIL EXPOSURE PATHWAY SCORESHEET (concluded)

Facto	or Categories and Factors	Maximum Value	Value Assigned
	<u>Targets</u>		
18. 19. 20.	Nearby Individual Population Within 1 Mile Targets (lines 18 + 19)	1 b b	0 002 002
	Nearby Population Threat Score		
21.	Nearby Population Threat (lines 14 x 17 x 20)	ь	0.9
SOIL	EXPOSURE PATHWAY SCORE		Nearby Population 2 Threat: (Default Value)
22.	Soil Exposure Pathway Scored (S _s), (lines [11 + 21], subject to a maximum of 100)	100	0.00

a Maximum value applies to waste characteristics category.

b Maximum value not applicable.

c No specific maximum value applies to the factor. However, pathway score based solely on sensitive environments is limited to maximum of 60.

d Do not round to the nearest integer.

Location: Brentwood, Williamson County, Tennessee

AIR MIGRATION PATHWAY SCORESHEET

Factor Categories and Factors

	Likelihood of Release	Maximum Value	Value Assigned
1.	Observed Release	550	0
2.	Potential to Release		
	2a. Gas Potential to Release	500	<u>500</u>
	2b. Particulate Potential to Release	500	<u> 500</u>
	2c. Potential to Release (higher of	500	EOO
3.	lines 2a and 2b) Likelihood of Release	500	<u>500</u>
٥.	(higher of lines 1 and 2c)	a	500
	(riigher or lines rand 2c)	a	
	Waste Characteristics		
4.	Toxicity/Mobility	a	1
5.	Hazardous Waste Quantity	a	10
6.	Waste Characteristics	100	2
	<u>Targets</u>		
7.	Nearest Individual	50	1
8.	Population		
	8a. Level I Concentrations	b	0
	8b. Level II Concentrations	b	0
	8c. Potential Contamination	ь	<u>4.81</u>
	8d. Population (lines $8a + 8b + 8c$)	b	<u>4.81</u>
9.	Resources	5	0
10.	Sensitive Environments		
	10a. Actual Contamination	C	0
	10b. Potential Contamination	С	0
	10c. Sensitive Environments (lines 10a + 10b)	С	0
11.	Targets (lines $7 + 8d + 9 + 10c$)	b	<u>5.81</u>
	Air Migration Pathway Score		-
12.	Pathway Score (S _a)		
	[(Lines 3 x 6 x 11)/82,500]d	100	<u>0.07</u>

Maximum value applies to waste characteristics category.

b Maximum value not applicable.

c No specific maximum value applies to the factor. However, pathway score based solely on sensitive environments is limited to maximum of 60.

d Do not round to the nearest integer.

SITE INSPECTION WORKSHEETS

CERCLIS IDENTIFICATION NUMBER

<u> </u>		SITE I	OCATION		
SITE NAME: LE	GAL COMMON.	OR DESCRIPTIVE NAM			
	Kennon				
STREET ADDR	ESS ROUTE OR	SPECIFIC LOCATION	IDENTIFIER		
	1 - 1 000	(mod / 10)	115cm	ar K	
CITY		<u></u>	STATE	ZIP CODE -	TELEPHONE
True of	rcccd		TN		()
	: LATITUDE and I		TOWNSHIP, F	WIGE, AND SECT	ION
35'57'2	2″ 86°4	6'27'			
		OWNER/OPERATO		CATION	
OWNER	et Ker	C(1)	OPERATOR	_	•
. —	·	· · · ·	3Am		
OWNER ADORE	ss 1 Sidco	Drive	OPERATOR A	DDRESS	
Noshi	ville		CITY		
	21P CODE 37204	TELEPHONE ()	STATE	ZIP CODE	TELEPHONE ()
		SITE EV.	ALUATION		,
AGENCY/ORGA	NIZATION				
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INVESTIGATOR		,			
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	C Clones	777	<u></u> t		13,087
TELEPHONE (1:4) リレる	965				

GENERAL INFORMATION

operational hit active or inact activities that alleged. Iden	ption and Operational History: Provide a brief description of the sit istory. State the site name, owner, operator, type of facility and operations, tive status, and years of waste generation. Summarize waste treatment, sto have or may have occurred at the site; note whether these activities are doctify all source types and prior spills, floods, or fires. Summarize highlights of ations. Cite references.	size of property, rage, or disposal cumented or
	The 10-acre site is located on a 150-acre tract of farmland owned by Emmett and Rose Kennon.	
	The site is currently undergoing remediation. Phosphate was mined on the farmland property	
	between 1972 and 1974, and one pit was left unreclaimed. In 1978, this mine pit and four	
	additional trenches were used for the disposal of industrial wastes, consisting of organic solvents,	
	adhesives, and organic fillers from General Adhesives, which at that time was a division of	
	Genesco Inc. (Ref. 4).	
	Genesco corporate officials learned of the disposal activities in 1985, at which time the	
	Tennessee Department of Environmental and Conservation (TDEC), formerly known as the	
	Tennessee Department of Health and Environment (TDHE), was notified, and a series of	
	investigations and remedial activities were begun under the supervision and direction of TDEC	
	(Ref. 4).	
	During the initial stage, a silt fence was constructed to prevent contaminated sediment from	 _
	leaving the property, and an afternative water supply was provided to residents in the area. Soil	
	sampling and geophysical surveys were conducted in the disposal areas, and monitor wells were	
	constructed on site by consultant personnel. Domestic wells and springs were sampled by the	ļ
	TDHE, and the US Geological Survey (USGS) conducted a study of the regional groundwater	-
	flow system. In 1986, the city of Brentwood extended the city water lines into this area of	
	Williamson County to provide city water to residents in the surrounding area, with Genesco	
	participating in the funding thereof (Ref. 4)	}
	Geraghty and Miller, Inc. (G&M) was retained by Genesco to collect and analyze all of the	
	existing data and to prepare a plan of investigation of the site. During 1987, that plan was	
	implemented. From the data obtained during the site investigation in 1987, it was concluded that	
	the hydrogeologic system at the site is composed of three basic units. The uppermost unit (the	
	shallow aquiferi includes a granular saprolite zone at the base of the weathering residuum and	
	the weathered upper few feet of the bedrock. This is underlain by the Hermitage Aquitard.	
<u>-</u>	which is a confining zone. The Carter's Formation, which is the third unit, underties both the	
·	hydrogeologic systems noted above and is a massive limestone formation (Ref. 4)	

The groundwater flow in the shallow aquifer is toward the southwest and is largely controlled by topography. Groundwater contamination was found to be restricted to the shallow aquifer and confined to a relatively small area on the Kennon property immediately adjacent to the disposal area. Based upon the data collected, it was determined that it was unlikely that any contaminants had migrated off of the Kennon property (Ref. 4).

Work plans, investigation reports and remedial design documents were prepared during 1986 to 1990 to address the onsite contaminants and were implemented in 1989 through 1991. The site is being remediated in accordance with TDEC order, No. 86-3013, issued March 5, 1986. A Hazard Evaluation and Remedial Alternatives (HE&RA) study was conducted to identify the media of concern (groundwater, adhesive waste, contaminated soils) and the optimum treatment and disposal alternatives (Ref. 4)

The selected groundwater remedial method was Remedial Alternative 1 of the HE&RA, which was comprised of a subsurface drain. The subsurface collection drain was designed and installed in November 1989 to intercept the flow of groundwater. Intercepted groundwater is removed from the site and treated through the city of Brentwood sewer system at a treatment facility operated by the Metropolitan Government of Nashville and Davidson County. Large mechanical screens were used from June 1990 to September 1991 to separate semi-solid and solid adhesive wastes from the soils. Excavated adhesive wastes were removed from the site and incinerated. The remaining soils were processed through the screens several times prior to the bioremediation phase of the project (Ref. 4).

A treatability study was conducted by G&M at the site in 1990. The study determined that an adapted indigenous aerobic bacteria population was present in the soils, which could be used to convert the residual contamination present in the soils to carbon dioxide. Baseline soil sampling was conducted in 1990 and 1991, and the site was terraced into a series of surface water holding cells in order to promote the bioremediation effort. Soil and groundwater sampling takes place on a scheduled basis, to ensure that bioremediation continues in an effective manner. Bioremediation is anticipated to continue until approximately the year 2002, but closure of the site will not be completed until a comprehensive sampling analysis has been conducted to ensure that the soil and groundwater cleanliness meets the applicable regulations (Ref. 4).

GENERAL INFORMATION (continued)

Site Sketch: Provide a sketch of the site. Indicate all pertinent features of the site and nearby	
Site Sketch: Provide a sketch of the site. Indicate all pertinent features of the site and nearby environments including sources of wastes, areas of visible and buried wastes, buildings, residences, access roads, parking areas, fences, fields, drainage patterns, water bodies, vegetation, wells, sensitive	
environments, and other features.	
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GENERAL INFORMATION (continued)

Source Descriptions: Describe all sources at the site. Identify source type and relate to waste disposal operations. Provide source dimensions and the best available waste quantity information. Describe the condition of sources and all containment structures. Cite references.

SOURCE TYPES

Landfill: A man-made (by excavation or construction) or natural hole in the ground into which wastes have come to be disposed by backfilling, or by contemporaneous soil deposition with waste disposal.

Surface Impoundment: A natural topographic depression, man-made excavation, or diked area, primarily formed from earthen materials (fined or unlined) and designed to hold an accumulation of tiquid wastes, wastes containing free liquids, or studges not backfilled or otherwise covered; depression may be wet with exposed liquid or dry if deposited liquid has evaporated, volatilized or leached; structures that may be described as lagoon, pond, aeration pit, settling pond, tailings pond, sludge pit; also a surface impoundment that has been covered with soil after the final deposition of waste materials (i.e., buried or backfilled).

Drum: A portable container designed to hold a standard 55-gallon volume of wastes.

Tank and Non-Drum Container: Any device, other than a drum, designed to contain an accumulation of waste that provides structural support and is constructed primarily of fabricated materials (such as wood, concrete, steel, or plastic); any portable or mobile device in which waste is stored or otherwise handled.

Contaminated Soil: An area or volume of soil onto which hazardous substances have been spilled, spread, disposed, or deposited.

Pile: Any non-containerized accumulation above the ground surface of solid, non-flowing wastes; includes open dumps. Some types of waste piles are:

Chemical Waste Pile:

A pile consisting primarily of discarded chemical products, by-products, radioactive wastes, or used or unused feedstocks.

• Scrap Metal or Junk Pile: A pile consisting primarily of scrap metal or discarded durable goods (such as appliances, automobiles, auto parts, batteries.

etc.) composed of materials containing hazardous substances.

Tailings Pile: A pile consisting primarily of any combination of overburden from

a mining operation and tailings from a mineral mining,

beneficiation, or processing operation.

Trash Pile: A pile consisting primarily of paper, garbage, or discarded non-

durable goods containing hazardous substances.

Land Treatment: Landfarming or other method of waste management in which liquid wastes or sludges are spread over land and tilled, or liquids are injected at shallow depths into soils.

Other: Sources not in categories listed above.

GENERAL INFORMATION (continued)

Source Description Table 3-2), surface to	n: Include de water (see HRS	escription of cont 5 Table 4-2), and	ainment per path air (see HRS Tab	iway for ground water iles 6-3 and 6-9).	(see HRS
			T-2		
					·
Verardous Wasta	Ougstly (HV	VOV Calculation	· Cl Tables 1 s	and 2 (See HRS Table	25 25
and 5-2).					S 2-5, 2-6,
	800 dx	uns of	od nesive s	and odlier	
	Υ.	clattle or	garres		Ì
					ļ
Attach additional pag	ges, if necessa	ry		HWQ = [1 C	

SI TABLE 1: HAZARDOUS WASTE QUANTITY (HWQ) SCORES FOR SINGLE SOURCE SITES AND FORMULAS FOR MULTIPLE SOURCE SITES

		Single Source Sites		
	·	(assig	ned HWQ scores)	
(Column 1)	(Column 2)	(Column 3)	(Column 4)	
TIER	Source Type	HWQ = 10	HWQ ≈ 100	
A Hazardous Constituent Quantity	N/A	HWQ = 1 if Hazardous Constituent Ouantity data are complete HWO = 10 if Hazardous Constituent Quantity data are not complete	>100 to 10,000 fbs	
B Hazardous Wastestream Quantity	N/A	≤ 500,000 lbs	>500,000 to 50 million lbs	
	Landfill	≤ 6.75 million ft ³ ≤ 250,000 yd ³	>6.75 million to 675 million ft ³ >250,000 to 25 million yd ³	
	Surface impoundment	≤6,750 ft ³ ≤250 yd ³	>6,750 to 675,000 ft ³ >250 to 25,000 yd ³	
	Drums	≤1,000 drums	>1,000 to 100,000 drums	
C Volume	Tanks and non-drum containers	≤50,000 gallons	>50,000 to 5 million gallons	
	Contaminated soil	≤6.75 million tt ³ ≤250,000 yd ³	>6.75 million to 675 million ft ³ >250,000 to 25 million yd ³	
	Pile	≤6,750 tt ³ ≤250 yd ³	>6,750 to 675,000 ft ³ >250 to 25,000 yd ³	
	Other	≤6,750 ft ³ ≤250 yd ³	>6,750 to 675,000 ft ³ >250 to 25,000 yd ³	
	Landfill	≤340,000 ft ² ≤7.8 acres	>340,000 to 34 million ft ² >7.8 to 780 acres	
D	Surface impoundment	≲1,300 ft² ≤0.029 acres	>1,300 to 130,000 ft ² >0.029 to 2.9 acres	
Area	Contaminated soil	≲3.4 million ft² ≤78 acres	> 3.4 million to 340 million ft ² > 78 to 7,800 acres	
	Pile	≤1,300 ft ² ≤0.029 acres	>1,300 to 130,000 ft ² >0.029 to 2.9 acres	
	Land treatment	≤27,000 ft² ≤0.62 acres	>27,000 to 2.7 million ft ² >0.62 to 62 acres	

1 den = 21000 privads = 1 cubic yard = 4 drums = 200 garas

TABLE 1 (CONTINUED)

Single Source (assigned HWQ		Multiple Source Sites		
(Column 5) HWQ = 10,000	(Column 6) HWQ = 1,000,000	(Column 7) Divisors for Assigning Source WQ Values	(Column 2) Source Type	(Column 1) TIER
>10,000 to 1 million lbs	> 1 million lbs	fbs + 1	N/A	A Hazardaus Constituent Quantity
>50 million to 5 billion lbs	> 5 billion lbs	lbs + 5,000	N/A	B Hezerdous Westestream Quantity
>675 million to 67.5 billion ft ³	> 67.5 billion ft ³	ft ³ + 67,500	Landfill	
>25 million to 2.5 billion yd ³ >675,000 to 67.5 million ft ³ >25,000 to 2.5 million yd ³	> 2.5 billion yd ³ > 67.5 million ft ³ > 2.5 million yd ³	yd ³ + 2,500 ft ³ + 67.5 yd ³ + 2.5	Surface Impoundment	
>100,000 to 10 million drums >5 million to 500 million gallons	> 10 million drums > 500 million gallons	drums + 10 gallons + 500	Drums	C
>675 million to 67.5 billion tr ³ >25 million to 2.5 billion yd ³	> 67.5 billion ft ³ > 2.5 billion yd ³	ti ³ + 67,500 yd ³ + 2,500	Tanks and non-drum containers Contaminated Soil	Aoinwe
>675,000 to 67.5 million ft ³ >25,000 to 2.5 million yd ³	> 67.5 million ft ³ > 2.5 million yd ³	ft ³ + 67.5 yd ³ + 2.5	Pile	
>675,000 to 67.5 million ft ³ >25,000 to 2.5 million yd ³	> 67.5 million ft ³ > 2.5 million yd ³	ft ³ + 67.5 yd ³ + 2.5	Other	
>34 million to 3.4 billion ft ² >780 to 78,000 acres	> 3.4 billion ft ² >78,000 acres	ft ² + 3,400 acres + 0.078	Landfill	
>130,000 to 13 million ft ² >2.9 to 290 acres	> 13 million ft ² > 290 acres	ft ² + 13 acres + 0.00029	Surface Impoundment	D
> 340 million to 34 billion tt ² > 7,800 to 780,000 acres	> 34 billion ft ² > 780,000 acres	ft ² + 34,000 acres + 0.78	Contaminated Soil	Area
> 130,000 to 13 million ft ² > 2.9 to 290 acres	> 13 million ft ² > 290 acres	ft ² + 13 acres + 0.00029	Pile	
>2.7 million to 270 million ft ² >62 to 6,200 acres	> 270 million ft ² > 6,200 acres	ft ² + 270 acres + 0.0062	Land Treatment	

¹ ion = 2,000 pounds = 1 cubic yard = 4 druins = 200 gallons

HAZARDOUS WASTE QUANTITY (HWQ) CALCULATION

For each migration pathway, evaluate HWQ associated with sources that are available (i.e., incompletely contained) to migrate to that pathway. (Note: If Actual Contamination Targets exist for ground water, surface water, or air migration pathways, assign the calculated HWQ score or 100, whichever is greater, as the HWQ score for that pathway.) For each source, evaluate HWQ for one or more of the four tiers (SI Table 1; HRS Table 2-5) for which data exist: constituent quantity, wastestream quantity, source volume, and source area. Select the tier that gives the highest value as the source HWQ. Select the source volume HWQ rather than source area HWQ if data for both tiers are available.

Column 1 of SI Table 1 indicates the quantity tier. Column 2 lists source types for the four tiers. Columns 3, 4, 5, and 6 provide ranges of waste amount for sites with only one source, corresponding to HWQ scores at the tops of the columns. Column 7 provides formulas to obtain source waste quantity values at sites with multiple sources.

- 1. Identify each source type.
- 2. Examine all waste quantity data available for each source. Record constituent quantity, and waste stream mass or volume. Record dimensions of each source.
- 3. Convert source measurements to appropriate units for each tier to be evaluated.
- 4. For each source, use the formulas in the last column of SI Table 1 to determine the waste quantity value for each tier that can be evaluated. Use the waste quantity value obtained from the highest tier as the quantity value for the source.
- 5. Sum the values assigned to each source to determine the total site waste quantity.
- Assign HWQ score from SI Table 2 (HRS Table 2-6).

Note these exceptions to evaluate soil exposure pathway HWQ (see HRS Table 5-2):

- The divisor for the area (square feet) of a landfill is 34,000.
- The divisor for the area (square feet) of a pile is 34.
- Wet surface impoundments and tanks and non-drum containers are the only sources for which volume measurements are evaluated for the soil exposure pathway.

SI TABLE 2: HWO SCORES FOR SITES

Site WQ Total	HWQ Score
0	0
1 ^a to 100	1 ^b
> 100 to 10,000	100
> 10,000 to 1 million	10,000
> 1 million	1,000,000

a If the WO total is between 0 and 1, round it to 1.

b If the hazardous constituent quantity data are not complete, assign the s∞re of 10.

Site Name:	remon but		References_	1,4
Sources:			•	
1. 800 Dr	ums 4	•		
3		•		

								SUR	FACE	WATER	PATHW	/AY				E · F
SOURCE	HAZARDOUS SUBSTANCE	TOXICITY	GRO WA' PATH	TER		OVE	RLAND/	FLOOD	MIGRAT	ION				WATER 1		PAIN VALV
			GW Mobility (HRS Table 3-8)	Tox/ Mobility Value (HRS Table 3-9)	Per (HTS Table 4-10 and 4-11)	Tox/Per Value (HRS Table 4-12)	Blonc Pot. (HRS Table 4-15)	Tox/ Pers/ Bloom Value (HRS Table 4-16)	Ecotox (HRS Table 4-19)	Ecoton/ Pers (HRS Table 4-20)	Ecotox/ Pers/ Bloacc Value (HTS Table 4-21)	Tox/ Mob/ Pera Value (HRS Table 4-26)	Tos/ Mob/ Pers/ Bloacc Value (HRS Table 4-26)	Ecotos/ Mob/ Pers Value (HRS Table 4-28)	Ecotos/ Mob/ Par/ Bloscc Value (HRS Table 4- 20)	AIR/ GAS Mohility
	ACETONE	10	1.0	10	0.4	4.0	0.5	2.0	100	40	20					1.0
1	ACETATE	1.0	1. 0	1.0	0.4	0.4	0.5	0.2	1	0.4	0.2					1.0
	Hexane	10	1.0	10	0.4	40	500	2 x 104	100	40	2 104		<u> </u>			10
1	Chloride	10	_1.0	10	0.4	4.0	5	20	ı	0.4	2.0					1.0
	MEK	10	10	10	04	4.0	0.5	2.0	1 -	0.4	02					10
1	TULLIENE	10	10	10	0.4	4.0	5Q	200	100	40	2×103					1.0
	in Hubelkon	10	1.0	10	0.4	40	5.0	20	0	4.0	20					1.0
	Trichlocally	بيون ا	1.0	10	04	40	30_	ಎಂ	0	О У	2×103					1.0
																_
																_]
														<u> </u>	<u> </u>	_
														<u> </u>		_
<u> </u>							<u> </u>									_
	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u></u>		<u> </u>	<u> </u>				L	<u> </u>	<u> </u>		

Ground Water Observed Release Substances Summary Table

On SI Table 4, list the hazardous substances associated with the site detected in ground water samples for that aquifer. Include only those substances directly observed or with concentrations significantly greater than background levels. Obtain toxicity values from the Superfund Chemical Data Matrix (SCDM). Assign mobility a value of 1 for all observed release substances regardless of the aquifer being evaluated. For each substance, multiply the toxicity by the mobility to obtain the toxicity/mobility factor value; enter the highest toxicity/mobility value for the aquifer in the space provided.

Ground Water Actual Contamination Targets Summary Table

If there is an observed release at a drinking water well, enter each hazardous substance meeting the requirements for an observed release by well and sample ID on SI Table 5 and record the detected concentration. Obtain benchmark, cancer risk, and reference dose concentrations from SCDM. For MCL and MCLG benchmarks, determine the highest percentage of benchmark obtained for any substance. For cancer risk and reference dose, sum the percentages for the substances listed. If benchmark, cancer risk, or reference dose concentrations are not available for a particular substance, enter N/A for the percentage. If the highest benchmark percentage or the percentage sum calculated for cancer risk or reference dose equals or exceeds 100%, evaluate the population using the well as a Level I target. If these percentages are less than 100% or all are N/A, evaluate the population using the well as a Level II target for that aquifer.

SI TABLE 4:	GROUND WATER	OBSERVED	RELEASE S	UBSTANCE	S (BY AQUI	FER)		
Sample ID	Hazardous Substance	Bckgrd. Conc.	Toxicity/ Mobility	References				
00	, de la constant							
·	<u> </u>	 						
								
	Highest To	xicity/Mobility						
SI TARIF 5	: GROUND WATER	ACTUAL (CONTAMINATIO	N TARGET	rs			
Well ID:			Levell	Level II	_ Population Se	rved	Reference	s
		Conc.	Benchmark Conc.	% of	Cancer Risk	% of Cancer		
Sample ID	Hazardous Substance	<u>(μg/L)</u>	(MCL or MCLG)	Benchmark	Conc.	Risk Conc.	RID	% of RfD
		 						
			Highest		Sum of		Sum of	
			Percent		Percents		Percents	
Well ID:			Level1	Level II	_ Population Se	erved	Reference	os
			Benchmark					
Sample ID	Hazardous Substance	Conc. (µg/L)	Conc. (MCL or MCLG)	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RID	% of RfD
								

Sum of Percents Sum of Percents

Highest Percent

GROUND WATER PATHWAY GROUND WATER USE DESCRIPTION

	The city of Brentwood supplies potable water to the residents in the area of the Kennon site.	
	As previously stated, some residents were using private wells as their water source but since	
	work began at this site, water lines have been installed (Ref. 4). The city of Brentwood obtains	
	water from Metro Nashville and Harpeth Valley Utilities. Both systems obtain water from	
	untakes in the Cumberland River (Ref. 5)	
		-
		
w Cal	culations of Ground Water Drinking Water Populations for each Aqui	lfer:
ride app	portionment calculations for blended supply systems.	lfer:
ride app	culations of Ground Water Drinking Water Populations for each Aquiportionment calculations for blended supply systems. erage number of persons per household: Reference	lfer:
ride app	portionment calculations for blended supply systems.	lfer:
ride app	portionment calculations for blended supply systems.	lfer:
ride app	portionment calculations for blended supply systems.	lfer:
ride app	portionment calculations for blended supply systems.	lfer:
ride app	portionment calculations for blended supply systems.	lfer:
ride app	portionment calculations for blended supply systems.	lfer:
ride app	portionment calculations for blended supply systems.	lfer:
ride app	portionment calculations for blended supply systems.	lfer:
vide app	portionment calculations for blended supply systems.	lfer:

GROUND WATER PATHWAY WORKSHEET

		_	Data	
	KELIHOOD OF RELEASE	Score	Туре	Reis
1.			1	
	support a release to the aquifer, assign a score of 550. Record	55C		
	observed release substances on St Table 4.	1	 	ļ
2.	POTENTIAL TO RELEASE: Depth to aquifer:30_feet. If		İ	
	sampling data do not support a release to the aquifer, and the site is	1		
	in karst terrain or the depth to aquifer is 70 feet or less, assign a	l	1	1
	score of 500; otherwise, assign a score of 340. Optionally,		1 1	1
	evaluate potential to release according to HRS Section 3.	0	PT	
	LR =	<u> 552 </u>	ļ	
TA	RGETS			
	Are any wells part of a blended system? Yes No X			
	If yes, attach a page to show apportionment calculations.			ļ
			1	
3	ACTUAL CONTAMINATION TARGETS: If analytical evidence	,	1	
	indicates that any target drinking water well for the aquifer has been		}	
	exposed to a hazardous substance from the site, evaluate the			
	factor score for the number of people served (SI Table 5).			
	• • • • • • • • • • • • • • • • • • • •		•	,
	Level I: people x 10 =		1	
	Level II: people x 1 = Total =	\cap	, ;	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
		\cup	(-	1,4,5
4.	POTENTIAL CONTAMINATION TARGETS: Determine the number			
	of people served by drinking water wells for the aquiter or overlying	Í		
	aquifers that are not exposed to a hazardous substance from the			
	site; record the population for each distance category in SI Table 6a	A		
	or 6b. Sum the population values and multiply by 0.1.	0		1.4.5
5.	NEAREST WELL: Assign a score of 50 for any Level I Actual			
J.	Contamination Targets for the aquifer or overlying aquifer. Assign a]
	score of 45 if there are Level II targets but no Level I targets. If no		ĺ	- 1
			•	
	Actual Contamination Targets exist, assign the Nearest Well score	_	j	
	from SI Table 6a or 6b. If no drinking water wells exist within 4 miles,	()	14	1.5
	assign 0.	·		
Э.	WELLHEAD PROTECTION AREA (WHPA): If any source lies =	}	1	}
	within or above a WHPA for the aquifer, or if a ground water			
	observed release has occurred within a WHPA, assign a score of			ļ
	20; assign 5 if neither condition applies but a WHPA is within 4	Γ_{i}	14	- u.5 }
	miles; otherwise assign 0.			
7.			- 1	1
	resource applies; assign 0 if none applies.	Í	ĺ	(
	Indicate of the second second second second	1		Ì
	Imigation (5 acre minimum) of commercial food crops or	J	- 1	J
	commercial forage crops		•	
	Watering of commercial livestock]	
	Ingredient in commercial food preparation	}		- 1
	Supply for commercial aquaculture			[
	 Supply for a major or designated water recreation area, 	1		
	excluding drinking water use	\sim 1	. , i 🚹	
		<u> </u>	H	<u> 4,5</u>
\overline{D}	T KIELLINGE Sum of Targets T=	Ö		
1 (, i le fiction de			

A vert 10 E Not the profes 3 C Depth to Lawer 3 D Trace Tale 35

1 1 2 2 2 2 2 2

C-15

SI TABLE 6 (From HRS TABLE 3-12): VALUES FOR POTENTIAL CONTAMINATION GROUND WATER TARGET POPULATIONS

SI Table 6a: Other Than Karst Aquifers

ſ		<u> </u>						Populat	on Serve	d by Wel	ls within Di	stance Cat	egory				
	Distance from Site	Рор.	Nearest Well (choose highest)	1 to 10_	11 10 30	31 to 100	101 to 300	301 to 1000	1001 to 3000	3001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,000 to 3,000,000	Pop. Value	Ret_
	0 to $\frac{1}{4}$ mile	(1)	20	4	17	53	164	52 2	1,633	5,214	16,325	52,137	163,246	521,360	1,632,455	\bigcirc	11,5
	$> \frac{1}{4}$ to $\frac{1}{2}$ mile	Ö	18	2	11	33	102	324	1,013	3,233	10,122	32,325	101,213	323,243	1,012,122		
၁[> ½ to 1 mile	つ	9	1	5	17	52	167	523	1,669	5,224	16,684	52,239	166,835	522,385		
- <u>1</u> 6	> 1 to 2 miles	()	5	0.7	3	10	30	94	294	939	2,939	9,385	29,384	93,845	293,842	0	
	> 2 to 3 miles	()	3	0,5	2	7	21	68	212	678	2,122	6,778	21,222	67,777	212,219	0	
	>3 to 4 miles	(7)	2	0.3	1	4	13	42	131	417	1,306	4,171	13,060	41,709	130,596	0	V
	Nearest	Well =	.)											•	Sum =	0	

VALUES FOR POTENTIAL CONTAMINATION GROUND WATER TARGET POPULATIONS (continued) SI TABLE 6 (From HRS TABLE 3-12):

SI Table 6b: Karst Aquifers

1				- · ·				Populat	on Serve	d by Wel	s within Di	stance Cat	egory				
	Distance from Site	Pop.	Nearest Well (choose highest)	1 10 10	11 to 30	31 to 100	101 10 300	301 10 1000	1001 to 3000	3001 10 10,000	10,001 10 30,000	30,001 In 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,000 to 3,000,000	Pop. Valu e	Ref
	0 to $\frac{1}{4}$ mile		20	4	17	53	164	522	1,633	5,214	16,325	52,137	163,246	521,360	1,632,455	-	
i	$>\frac{1}{4}$ to $\frac{1}{2}$ mile		20	2	11	33	102	324	1,013	3,233	10,122	32,325	101,213	323,243	1,012,122		
ဂု	$>\frac{1}{2}$ to 1		20	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227		
17	> 1 to 2 miles		20	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227		
	> 2 to 3 miles		20	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227		
	>3 to 4 miles		20	2	9	26	82	261	817	2,607	8,163	28,068	81,623	260,680	816,227		
	Nearest	Well =													Sum =		

GROUND WATER PATHWAY WORKSHEET (concluded)

WAS	STE CHARACTERISTICS	Score	Data Type	Does not Apply
8.	If any Actual Contamination Targets exist for the aquifer or overlying aquifers, assign the calculated hazardous waste quantity score or a score of 100, whichever is greater; if no Actual Contamination Targets exist, assign the hazardous waste quantity score calculated for sources available to migrate to ground water.	10		
9.	Assign the highest ground water toxicity/mobility value from SI Table 3 or 4.	1.0	Н	_
10.	Multiply the ground water toxicity/mobility and hazardous waste quantity scores. Assign the Waste Characteristics score from the table below: (from HRS Table 2-7) Product WC Score	3		
	WC =	3		

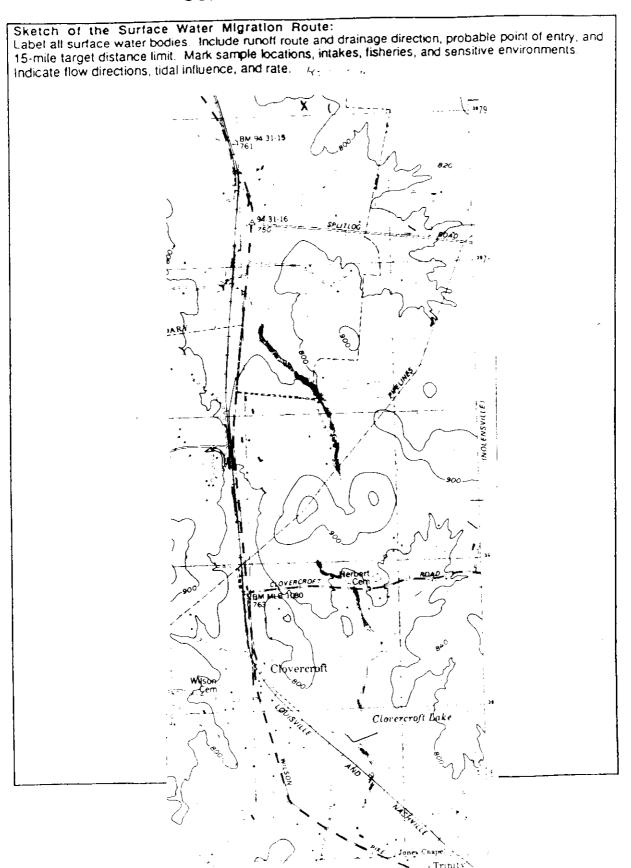
Multiply LR by T and by WC. Divide the product by 82,500 to obtain the ground water pathway score for each aquifer. Select the highest aquifer score. If the pathway score is greater than 100, assign 100.

GROUND WATER PATHWAY SCORE:

LR X T X WC
82,500

(Maximum of 100)

SURFACE WATER PATHWAY



SURFACE WATER PATHWAY

Surface Water Observed Release Substances Summary Table

On SI Table 7, list the hazardous substances detected in surface water samples for the watershed, which can be attributed to the site. Include only those substances in observed releases (direct observation) or with concentration levels significantly above background levels. Obtain toxicity, persistence, bioaccumulation potential, and ecotoxicity values from SCDM. Enter the highest toxicity/persistence, toxicity/persistence/bioaccumulation, and ecotoxicity/persistence/ecobioaccumulation values in the spaces provided.

- TP = Toxicity x Persistence
- TPB = TP x bioaccumulation
- ETPB = EP x bioaccumulation (EP = ecotoxicity x persistence)

Drinking Water Actual Contamination Targets Summary Table

For an observed release at or beyond a drinking water intake, on SI Table 8 enter each hazardous substance by sample ID and the detected concentration. For surface water sediment samples detecting a hazardous substance at or beyond an intake, evaluate the intake as Level II contamination. Obtain benchmark, cancer risk, and reference dose concentrations for each substance from SCDM. For MCL and MCLG benchmarks, determine the highest percentage of benchmark obtained for any substance. For cancer risk and reference dose, sum the percentages of the substances listed. If benchmark, cancer risk, or reference dose concentrations are not available for a particular substance, enter N/A for the percentage. If the highest benchmark percentage or the percentage sum calculated for cancer risk or reference dose equals or exceeds 100%, evaluate the population served by the intake as a Level I target. If the percentages are less than 100% or all are N/A, evaluate the population served by the intake as a Level II target.

	and concent when	Bckgrd.	Toxicity/	Toxicity/ Persis./	Ecotoxicity/ Persis/			
Sample ID	Hazardous Substance	Conc.	Persistence	Bioaccum	Ecobioaccum	References		
				1				
	Hig	hest Values						
31 TABLE 8	: SURFACE WATER	DRINKING	G WATER ACT	UAL CONT	RAMINATION	TARGETS		
							Determ	
ntake IU:	Sample Type			WI I	Level II	ropulation Served	nererer	1685
		Conc.	Benchmark Conc.	% of	Cancer Risk	% of Cancer		
Sample ID	Hazardous Substance	(jig/L)	(MCL or MCLG)		Conc.	Risk Conc.	RID	% of RID
								
		L	Highest		Sum of	 	Sum of	
			Percent		Percents		Percents	L <u></u> .
Intake ID:	Sample Type		Le	vel 1	Level II	Population Serve	dRefere	nces
		J	Benchmark	T		T		<u> </u>
Sample ID	Hazardous Substance	Conc. (µg/L)	Conc. (MCL or MCLG)	% of	Cancer Risk Conc.	% of Cancer	tur.	A/ -/ D/D
July 10	Tide and one of the second	uig/E/	TIMOS OF MICEO	Delicimark	Conc.	Risk Conc.	RID	% of RID
								
			<u> </u>			 		
-								
		·	Highest	 	Sum of	· 	Sum of	ļ

SURFACE WATER PATHWAY LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT WORKSHEET

	EINELINGOD OF RELEASE AND DRIF	AVING MAICH	ITINEA: WO	MAGNE	<u>= 1</u>
1.11	KELIHOOD OF RELEASE-			Data	
	ERLAND/FLOOD MIGRATION		Score	Type	Rels
1.	OBSERVED RELEASE: If sampling data or direct	t observation		1	
	support a release to surface water in the watershe	ed, assign a s∞re		1	İ .
	of 550. Record observed release substances on	SI Table 7.	0	1-1	11.4
2.	POTENTIAL TO RELEASE: Distance to surface	water:(feet)]]	
	If sampling data do not support a release to surface		1	İ	1
	watershed, use the table below to assign a score		1	1	
	below based on distance to surface water and flo	od frequency.		1	1
	Distance to 2 de 1997	500			
	Distance to surface water <2500 feet	500		1	,
	Distance to surface water >2500 feet, and:			1	
	Site in annual or 10-yr floodplain	500		1	
	Site in 100-yr floodplain	400			
	Site in 500-yr floodplain	300			
	Site outside 500-yr floodplain	100		1	
				1	
	Optionally, evaluate surface water potential to rele	ease	⊋∂	H	1)
	according to HRS Section 4.1.2.1.2			7	() ~
			70		
		LR =		J	-
LUK	ELIHOOD OF RELEASE			Data	
	OUND WATER TO SURFACE WATER MIG	RATION	Score	Type	Refs
	OBSERVED RELEASE: If sampling data or direct				
• •	support a release to surface water in the watersher				}
	ALSO Described and all all and all and all and all and all and all and all all and all all and all all and all all and all all and all all all and all all and all all and all all all all all all all all all al			1 .	

LIKELIHOOD OF RELEASE		Data	
GROUND WATER TO SURFACE WATER MIGRATION	Score	Type	Refs
OBSERVED RELEASE: If sampling data or direct observation			
support a release to surface water in the watershed, assign a score			
of 550. Record observed release substances on SI Table 7.		ì	1
NOTE: Fushioto assured meteric audience water minution only for a			
NOTE: Evaluate ground water to surface water migration only for a		1	
surface water body that meets all of the following conditions:			
1) A portion of the surface water is within 1 mile of site sources having	•		1
a containment factor greater than 0.			Ì
2) No aquifer discontinuity is established between the source and the			
above portion of the surface water body.		1	
3) The top of the uppermost aquifer is at or above the bottom of the			
surface water.		1	
Elevation of top of uppermost aquifer	l	}	, ,
Elevation of bottom of surface water body			
2. POTENTIAL TO RELEASE: Use the ground water potential to		<u> </u>	
release. Optionally, evaluate surface water potential to release			
according to HRS Section 3.1.2.			
		1	·
LR =			
Elect Pot to Carcosc		_	

The relicion Pet to Carcosc by ficed by

1 E- = 70

SURFACE WATER PATHWAY LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT WORKSHEET (CONTINUED)

DRINKING WATER THREAT TARGETS	_Score	Data Type	Rets
Record the water body type, flow, and number of people served by each drinking water intake within the target distance limit in the watershed. If there is no drinking water intake within the target distance limit, assign 0 to factors 3, 4, and 5.			
Intake Name Water Body Type Flow People Served			
Are any intakes part of a blended system? Yes No			
 ACTUAL CONTAMINATION TARGETS: If analytical evidence indicates a drinking water intake has been exposed to a hazardous substance from the site, list the intake name and evaluate the factor score for the drinking water population (SI Table 8). 			-
Level I:people x 10 = Level II:people x 1 = Total =	0	H	1,45
4. POTENTIAL CONTAMINATION TARGETS: Determine the number of people served by drinking water intakes for the watershed that have not been exposed to a hazardous substance from the site. Assign the population values from SI Table 9. Sum the values and multiply by 0.1.	0	14	1,45
5. NEAREST INTAKE: Assign a score of 50 for any Level I Actual Contamination Drinking Water Targets for the watershed. Assign a score of 45 if there are Level II targets for the watershed, but no Level I targets. If no Actual Contamination Drinking Water Targets exist, assign a score for the intake nearest the PPE from SI Table 9. If no drinking water intakes exist, assign 0.	0	Н	· 4.5
6. RESOURCES: Assign a score of 5 if one or more surface water resource applies; assign 0 if none applies. • Irrigation (5 acre minimum) of commercial food crops or commercial forage crops • Watering of commercial livestock • Ingredient in commercial food preparation • Major or designated water recreation area, excluding drinking	t:		(45)
water use SUM OF TARGETS T=			

SI TABLE 9 (From HRS Table 4-14): DILUTION-WEIGHTED POPULATION VALUES FOR POTENTIAL CONTAMINATION FOR SURFACE WATER MIGRATION PATHWAY

		Number of people										
Type of Surface Water Body Po	Pop.	Nearest Intake	0	1 10 10	1 1 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 lo 10,000	10,001 to 30,000	Pop. Value
Minimal Stream (<10 cfs)		20	0	4	17	53	164	522	1,633	5,214	16,325	
Small to moderate stream (10 to 100 cfs)		2	0	0.4	2	5	16	52	163	521	1,633	
Moderate to large stream (> 100 to 1,000 cfs)		0	0	0.04	0.2	0.5	2	5	16	52	163	
Large Stream to river (>1,000 to 10,000 cfs)		0	0	0.004	0.02	0.05	0.2	0.5	2	5	16	
Large River (> 10,000 to 100,000 cfs)		0	0	0	0.002	0.005	0.02	0.05	0.2	0.5	16	
Very Large River (>100,000 cfs)		0	0	0	0	0.001	0.002	0.005	0.02	0.05	0.2	
Shallow ocean zone or Great Lake (depth < 20 feet)		0	0	0	0.002	0.005	0.02	0.05	0.2	0.5	2	
Moderate ocean zone or Great Lake (Depth 20 to 200 feet)		0	0	0	0	0.001	0.002	0.005	0.02	0.05	0.2	
Deep ocean zone or Great Lake (depth > 200 feet)		0	0	0	0	0	0.001	0.003	0.008	0.03	0.08	
3-mile mixing zone in quiet flowing river (≥ 10 cfs)		10	0	2	9	26	82	261	817	2,607	8,163	
l leorael	ntake =			- 							Sum =	

n ()	
References	

SURFACE WATER PATHWAY

Human Food Chain Actual Contamination Targets Summary Table

On SI Table 10, list the hazardous substances detected in sediment, aqueous, sessile benthic organism tissue, or fish tissue samples (taken from fish caught within the boundaries of the observed release) by sample ID and concentration. Evaluate fisheries within the boundaries of observed releases detected by sediment or aqueous samples as Level II, if at least one observed release substance has a bioaccumulation potential factor value of 500 or greater (see SI Table 7). Obtain benchmark, cancer risk, and reference dose concentrations from SCDM. For FDAAL benchmarks, determine the highest percentage of benchmark obtained for any substance. For cancer risk and reference dose, sum the percentages for the substances listed. If benchmark, cancer risk, or reference dose concentrations are not available for a particular substance, enter N/A for the percentage. If the highest benchmark percentage sum calculated for cancer risk or reference dose equals or exceeds 100%, evaluate this portion of the fishery as subject to Level I concentrations. If the percentages are less than 100% or all are N/A, evaluate the fishery as a Level II target.

Sensitive Environment Actual Contamination Targets Summary Table

On SI Table 11, list each hazardous substance detected in aqueous or sediment samples at or beyond wetlands or a surface water sensitive environment by sample ID. Record the concentration. It contaminated sediments or tissues are detected at or beyond a sensitive environment, evaluate the sensitive environment as Level II. Obtain benchmark concentrations from SCDM. For AWQC/AALAC benchmarks, determine the highest percentage of benchmark of the substances detected in aqueous samples. If benchmark concentrations are not available for a particular substance, enter N/A for the percentage. If the highest benchmark percentage equals or exceeds 100%, evaluate that part of the sensitive environment subject to Level I concentrations. If the percentage is less than 100%, or all are N/A, evaluate the sensitive environment as Level II.

ishery ID:	Sar	nple Type		Level	1	Level II	Relerences	
Sample ID	Hazardous Substance	Conc. (mg/kg)	Benchmark Concentration (FDAAL)	% of Benchmark	Cancer Risk Concentration.	% of Cancer Risk Concentration	RID	% of RID
<u> </u>								
			Highest Percent		Sum of Percents		Sum of Percents	
TABLE 1	1: SENSITIVE ENVI	RONMENT	ACTUAL CO	NTAMINAT	ON TARGETS	S FOR WATE	RSHED	
	D: Sar						Environment Vali	J 0
Sample ID	Hazardous Substance	Conc (µg/L)	Benchmark Concentration (AWQC or AALAC)	% of Benchmark	References			
						•		
			,Highest Percent			· •		
Environment I	D: Sa	mple Type		Leve	NI	Level II	Environment Val	U 8
Sample ID	Hazardous Substance	Conc., (µg/L)	Benchmark Concentration (AWQC or AALAC)	% of Benchmark	References	_		
						_ -		
						- -		
		<u> </u>	Highest Percent		, -	_		

SURFACE WATER PATHWAY (continued) HUMAN FOOD CHAIN THREAT WORKSHEET

HUMAN FOOD CHAIN THREAT	TARGETS			Sco	re	Type	Refs	
Record the water body type and fit target distance limit. If there is no distance limit, assign a score of 0	low for each fi fishery within at the bottom	the target of this page	e.				7.7073	7
Fishery Name Little Harreth Civer Water Body		Flow	cfs]				
Species Production Species Production Production Production Fishery Name Water Body)	alce	_lbs/yr _lbs/yr					
1				li			1	l
Species Production Production			_lbs/yr _lbs/yr					ļ
Fishery Name Water Body	F	low	cfs) 	
Species Production Species Production			_lbs/yr _lbs/yr					
FOOD CHAIN INDIVIDUAL	· · · · · · · · · · · · · · · · · · ·						,	
7. ACTUAL CONTAMINATION FISH	ERIES:							
If analytical evidence indicates that a hazardous substance with a bioator equal to 500 (SI Table 10), assign Level I fishery. Assign 45 if there is I fishery.	ccumulation fa in a score of 50	actor greate of there is	er than a					
8. POTENTIAL CONTAMINATION FI	SHERIES:						J	
If there is a release of a substance greater than or equal to 500 to a w within the target distance limit, but the fisheries, assign a score of 20. If there is no observed release to the standard stan	atershed conta here are no Le	aining fishe evel I or Le	eries vel II		:			
for potential contamination fisherie the lowest flow at all fisheries within	s from the tabl	e below us	sing					
Lowest Flow	FC				1		1	
<10 cfs		20			}	J	J	
10 to 100 cfs		2			Ì			
>100 cfs, coastal tidal waters, oceans, or Great Lakes	}	0					1	
3-mile mixing zone in quiet	<u> </u>	10	_					
flowing river					ĺ	. [
		FCI Va	lue =	2_		H	7	
	SUM OF TA	ARGETS	Υ =	2	j			

SURFACE WATER PATHWAY (continued) ENVIRONMENTAL THREAT WORKSHEET

When measuring length of wetlands that are located on both sides of a surface water body, sum both frontage lengths. For a sensitive environment that is more than one type, assign a value for each type.

Record the water body type and flow for each surface water sensitive environment within the target distance (see SI Table 12). If there is no sensitive environment within the target distance limit, assign a score of 0 at the bottom of the page. Environment Name Water Body Type Flow Cfs Cfs Cfs Cfs Cfs Cfs Cfs Cfs Cfs Cfs	ENVIR	ONMENTA	L THE	REAT TARGE	rs			Score	Type	Rets
9. ACTUAL CONTAMINATION SENSITIVE ENVIRONMENTS: If sampling data or direct observation indicate any sensitive environment has been exposed to a hazardous substance from the site, record this information on SI Table 11, and assign a factor value for the environment (SI Tables 13 and 14). Environment Name	ser If th	nsitive enviro nere is no se	inment v nsitive e	vithin the target or environment withi	distance in the ta	(see SI	Table 12).			
9. ACTUAL CONTAMINATION SENSITIVE ENVIRONMENTS: If sampling data or direct observation indicate any sensitive environment has been exposed to a hazardous substance from the site, record this information on SI Table 11, and assign a factor value for the environment (SI Tables 13 and 14). Environment Name	Environ	ment Name		Water Body Type		Fby	<i>N</i>	7	1	
9. ACTUAL CONTAMINATION SENSITIVE ENVIRONMENTS: If sampling data or direct observation indicate any sensitive environment has been exposed to a hazardous substance from the site, record this information on SI Table 11, and assign a factor value for the environment (SI Tables 13 and 14). Environment Name Environment Type and Value (SI Tables 13 & 14) Multiplier (10 for Product Level II) x = x = 10. POTENTIAL CONTAMINATION SENSITIVE ENVIRONMENTS: Fibw Dilution Weight Environment Type and (SI Tables 13 & 14) Cont. cts x 0.1 = cts x x 0.1 = cts x x 0.1 = cts x x 0.1 = cts x x 0.1 = cts x x 0.1 = cts x x 0.1 = Sum = A Dilution Herbital Contamination Sensitive Environment Type and Pot. Cont. Sensitive Environment Type and Cont. Cont. Sensitive Environment Type Environment Type Environment Type Environment Type Environment Type Environment Type Environment Type Environment Type Environment Type Environment Envir							cfs	1	ļ	1
9. ACTUAL CONTAMINATION SENSITIVE ENVIRONMENTS: If sampling data or direct observation indicate any sensitive environment has been exposed to a hazardous substance from the site, record this information on SI Table 11, and assign a factor value for the environment (SI Tables 13 and 14). Environment Name							cfs	H]	
9. ACTUAL CONTAMINATION SENSITIVE ENVIRONMENTS: If sampling data or direct observation indicate any sensitive environment has been exposed to a hazardous substance from the site, record this information on SI Table 11, and assign a factor value for the environment (SI Tables 13 and 14). Environment Name Environment Type and Value (SI Tables 13 & 14) Evel II)										1
9. ACTUAL CONTAMINATION SENSITIVE ENVIRONMENTS: If sampling data or direct observation indicate any sensitive environment has been exposed to a hazardous substance from the site, record this information on SI Table 11, and assign a factor value for the environment (Si Tables 13 and 14). Environment Name			- · · ·						1	1
sampling data or direct observation indicate any sensitive environment has been exposed to a hazardous substance from the site, record this information on SI Table 11, and assign a factor value for the environment (SI Tables 13 and 14). Environment Name							CIS			
Value (SI Tables 13 & 14) Level I, 1 for Level III)	san env site	npling data o rironment ha , re∞rd this	r direct o s been o informat	observation indica exposed to a haz ion on SI Table 1	ate any ardous 1, and a	sensitive substand assign a l	e ce from the			-
X	Environn	nent Name	Environ Value (ment Type and SI Tables 13 & 14)	Level I,	1 for	Product			
X										
X			<u> </u>						1	
Sum = O	<u> </u>		-		×					
Sum = O					x	=	i			J
Sum = O										Ì
10. POTENTIAL CONTAMINATION SENSITIVE ENVIRONMENTS: Flow	L		l		×	=	Sum -	0	14	اعا
(SI Table 12) Value (SI Tables 13 & 14) Cont. cts x x 0.1 = cts x x 0.1 = cfs x x 0.1 = cfs x x 0.1 = cfs x x 0.1 = Sum = O H	10. PO	TENTIAL CO	NTAMI	NATION SENSITI	IVE EN	/IRONM				
(SI Table 12) Value (SI Tables 13 & 14) Cont. cts x x 0.1 = cts x x 0.1 = cfs x x 0.1 = cfs x x 0.1 = cfs x x 0.1 = Sum = O H	[Chu	Dilaina Wai		15		Dot	Benduat			
cts x x 0.1 = cts x x 0.1 = cfs x x 0.1 = cfs x x 0.1 = Sum = O H	FDW	(SI Table 12)) Jur				Froduct			i
cts x x 0.1 = cts x x 0.1 = cfs x x 0.1 = cfs x x 0.1 = Sum = O H	cts				v	01-				1
cts x x 0.1 = cfs x x 0.1 = cfs x x 0.1 = Sum = O H	- 013					0.12				l
cfs x x 0.1 =	cts	<u> </u>	X		X	0.1 =				ļ
cfs x x 0.1 =	cts		Y		Y	01=				Ī
cfs x x 0.1 = Sum = 0 H \(\hat{\times}\)			^_			Ü		:		
Sum = 0 H \(\lambda\)	cfs		X		X	0.1 =_			ļ	
Sum = 0 H \(\lambda\)	cfs		x		x	0.1 =				
τ =						·	Sum =	0	1+1	_^
							τ =			

SI TABLE 12 (HRS Table 4-13): SURFACE WATER DILUTION WEIGHTS

Type of Surface Water Body		Assigned Dilution Weight
Descriptor	Flow Characteristics	
Minimal stream	< 10 cfs	1
Small to moderate stream	10 to 100 cfs	0.1
Moderate to large stream	> 100 to 1,000 cfs	0.01
Large stream to river	> 1,000 to 10,000 c/s	0.001
Large river	> 10,000 to 100,000 cfs	0.0001
Very large river	> 100,000 cfs	0.00001
Coastal tidal waters	Flow not applicable; depth not applicable	0.001-
Shallow ocean zone or Great Lake	Flow not applicable; depth less than 20 feet	0.001
Moderate depth ocean zone or Great Lake	Flow not applicable; depth 20 to 200 feet	0.0001
Deep ocean zone or Great Lake	Flow not applicable; depth greater than 200 feet	0.000005
3-mile mixing zone in gulet flowing river	10 cfs or greater	0.5

SI TABLE 13 (HRS TABLE 4-23): SURFACE WATER AND AIR SENSITIVE ENVIRONMENTS VALUES

	ASSIGNED
SENSITIVE ENVIRONMENT	VALUE
Critical habitat for Federal designated endangered or threatened species	100
Marine Sanctuary	
National Park	
Designated Federal Wilderness Area]
Ecologically important areas identified under the Coastal Zone Wilderness Act	İ
Sensitive Areas identified under the National Estuary Program or Near Coastal	
Water Program of the Clean Water Act	
Critical Areas identified under the Clean Lakes Program of the Clean Water Act	1
(subareas in lakes or entire small lakes)	
National Monument (air pathway only)	i
National Seashore Recreation Area	
National Lakeshore Recreation Area	
Habitat known to be used by Federal designated or proposed endangered or threatened species	75
National Preserve	, ,
National or State Wildlife Refuge	•
Unit of Coastal Barrier Resources System	
Coastal Barner (undeveloped)	
Federal land designated for the protection of natural ecosystems	
Administratively Proposed Federal Wilderness Area	
Spawning areas critical for the maintenance of fish/shellfish species within a	
river system, bay, or estuary	-
Migratory pathways and feeding areas critical for the maintenance of	
anadromous fish species within river reaches or areas in lakes or coastal	
tidal waters in which the fish spend extended periods of time	
Terrestrial areas utilized by large or dense aggregations of vertebrate animals	
(semi-aquatic foragers) for breeding	
National river reach designated as recreational	· — ·
Habitat known to be used by State designated endangered or threatened species	50
Habitat known to be used by a species under review as to its Federal endangered	
or threatened status	
Coastal Barrier (partially developed)	
Federally designated Scenic or Wild River	
State land designated for wildlife or game management	25
State designated Scenic or Wild River	
State designated Natural Area	
Particular areas, relatively small in size, important to maintenance of unique biotic communities	
State designated areas for the protection of maintenance of aquatic life under the Clean Water	5
Act	•
Wetlands See SI Table 14 (Surface Water Pathway) or SI Table 23 (Air Pathway)	
AARONING 266 21 19016 +4 (2011906 AARIEL LITHINGA) OL 21 19016 52 (ML LITHINGA)	

SI TABLE 14 (HRS TABLE 4-24): SURFACE WATER WETLANDS FRONTAGE VALUES

Total Length of Wetlands	Assigned	Value
Less than 0.1 mile	0	
0.1 to 1 mile	25	
Greater than 1 to 2 miles	50	
Greater than 2 to 3 miles	75	
Greater than 3 to 4 miles	100	
Greater than 4 to 8 miles	150	
Greater than 8 to 12 miles	250	
Greater than 12 to 16 miles	350	
Greater than 16 to 20 miles	450	
Greater than 20 miles	500	

SURFACE WATER PATHWAY (concluded) WASTE CHARACTERISTICS, THREAT, AND PATHWAY SCORE SUMMARY

WASTE CHARACT	ERISTICS					Score	
14. If an Actual Cont chain, or environ the calculated ha	mental threat) o	exists fo	or the wate	rshe	ed, assign		
whichever is great		quantit.	y 30016, O	u 5.	ωι ι οι 100,	10	
15. Assign the highes Table 3 (no obser characterization ta	t value from SI ved release) for ictors below. M	the haultiply e	zardous su each by the	ıbst s ur	ance waste face water		
hazardous waste characteristics sco			armine the	was	sie	WC Score	(from Table)
	Substance Valu	10	HWQ		Product	(Maximum	of-100)-
Drinking Water Threat Toxicity/Persistence	4.0	х.	10	_	40	2	Mus : 100
Food Chain Threat Toxicity/Persistence Bioaccumulation	2 x 10'	-} x	10	-	2×10 ⁵	18	work 1000
Environmental Threat Ecotoxicity/Persistence/ Ecobioaccumulation	2×104	l x	0	-	2×105	18	Make Committee
Product			WC Score	ן ן			-
0 >0 to <10			0			}	
10 to <100]	2]	
100 to <1,00			3 6				
1,000 to < 10 10,000 to <1			10				ł
1E + 05 to <1	E + 06		18				
1E + 06 to <1 1E + 07 to <1			32 56				
1E + 08 to <1	E + 09		100	-	1		
1E + 09 to <1 1E + 10 to <1			180 320	}	•		ļ
1E + 11 to <1			560			!	ĺ
1E + 12 or gr	eater		1000	J	:		1
						<u> </u>	

SURFACE WATER PATHWAY THREAT SCORES

Threat	Likelihood of Release (LR) Score	Targets (T) Score	Pathway Waste Characteristics (WC) Score (determined above)	Threat Score LR x T x WC 82,500
Drinking Water	70	5	. 2	(maximum of 100)
Human Food Chain	70	2	18	(maximum of 100) 0, 0, 3
Environmental	70	0	18	(maximum of 60)

SURFACE WATER PATHWAY SCORE (Drinking Water Threat + Human Food Chain Threat + Environmental Threat)

(maximum of 100)

SOIL EXPOSURE PATHWAY

If there is no observed contamination (e.g., ground water plume with no known surface source), do not evaluate the soil exposure pathway. Discuss evidence for no soil exposure pathway.

Soll Exposure Resident Population Targets Summary

For each property (duplicate page 35 as necessary):

If there is an area of observed contamination on the property and within 200 feet of a residence, school, or day care center, enter on Table 15 each hazardous substance by sample ID. Record the detected concentration. Obtain cancer risk, and reference dose concentrations from SCDM. Sum the cancer risk and reference dose percentages for the substances listed. If cancer risk or reference dose concentrations are not available for a particular substance, enter N/A for the percentage. If the percentage sum calculated for cancer risk or reference dose equals or exceeds 100%, evaluate the residents and students as Level I. If both percentages are less than 100% or all are N/A, evaluate the targets as Level II.

SI TABLE 15: SOIL EXPOSURE RESIDENT POPULATION TARGETS

Residence ID:_	·		Levell	Level 1	1	Population		
Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RID	% of RfD	Toxicity Value	References
			Highest Percent		Sum of Percents		Sum of Percents	
Residence ID:_			Level I	Level	11	Population		
Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
			Highest Percent		Sum of Percents		Sum of Percents	
Residence ID:			Level 1	Level	ii	Population		
Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RID	% of RfD	Toxicity Value	References
			Highest Percent		Sum of Percents		Sum of Percents	

SOIL EXPOSURE PATHWAY WORKSHEET RESIDENT POPULATION THREAT

LIKELIHOOD OF EXPOSURE		Score	uata Type	Rets
1. OBSERVED CONTAMINATION: If ex	vidence indicates presence of		1 123	1
observed contamination (depth of 2 fe		}	}	
550; otherwise, assign a 0. Note that		2	1	}
score of 0 results in a soil exposure pa		155 <i>0</i>	ł	+
			1	
	LE =	1550	ľ	
		<u></u>	4	
TARGETS				
2. RESIDENT POPULATION: Determin	ne the number of people			
living or attending school or day care on a property with an area of obse				
residence, school, or day care center,	respectively is on or	'		
vithin 200 feet of the area of observed	i contamination.			
			·	
Level II: people x 1 =	Sum =		- 1	
3. RESIDENT INDIVIDUAL: Assign a sc	ore of 50 if any Level I			
resident population exists. Assign a s		ĺ	1	
targets but no Level I targets. If no re			ł	
no Level I or Level II targets), assign (
4. WORKERS: Assign a score from the)	
number of workers at the site and nea				
observed contamination associated w			}	
Number of Workers	Score 0		I	
0 1 to 100	5	1	- 1	
101 to 1,000	10		1	
>1,000	15	1		
	<u> </u>	j	j	
5. TERRESTRIAL SENSITIVE ENVIRON	NMENTS: Assign a value for			
each terrestrial sensitive environment				-
observed contamination.	` '			ŀ
		1	1	}
Terrestrial Sensitive Environment Type	Value			
	()	Ì	ĺ	1
				1
		}]
<u> </u>			i	[
E	Sum =			
6. RESOURCES: Assign a score of 5 if a	any one or more of the			
following resources is present on an a	rea of observed		- (1
contamination at the site; assign 0 if n	one applies.		1	1
 Commercial agriculture 			- (ì
Commercial silviculture			1	
 Commercial livestock production or 	commercial livestock	1		1
grazing				
	Total of Targets T=			
	Total of Targets T=			

SI TABLE 16 (HRS TABLE 5-5): SOIL EXPOSURE PATHWAY TERRESTRIAL SENSITIVE ENVIRONMENT VALUES

TERRESTRIAL SENSITIVE ENVIRONMENT	ASSIGNED VALUE
Terrestnal critical habitat for Federal designated endangered or threatened species. National Park	100
Designated Federal Wilderness Area National Monument	
Terrestrial habitat known to be used by Federal designated or proposed threatened or endangered species. National Preserve (terrestrial). National or State terrestrial Wildlife Reluge. Federal land designated for protection of natural ecosystems. Administratively proposed Federal Wilderness Area. Terrestrial areas utilized by large or dense aggregations of animals. (vertebrate species) for breeding.	75
Terrestrial habitat used by State designated endangered or threatened species Terrestrial habitat used by species under review for Federal designated endangered or threatened status	50
State lands designated for wildlife or game management State designated Natural Areas Particular areas, relatively small in size, important to maintenance of unique biotic communities	2.5

SOIL EXPOSURE PATHWAY WORKSHEET NEARBY POPULATION THREAT

LIK	(ELIHOOD OF EXPOSURE	_	Score	Data Type	Rel
7.	Attractiveness/Accessibility (from SI Table 17 or HRS Table 5-6)	Value _5			
	Area of Contamination (from SI Table 18 or HRS Table 5-7)	Value 80			
	Likelihood of I (from SI Table	Exposure 19 or HRS Table 5-8)			
nst	e: of flution no court of observed contentionations.	LE =	25		
	LE = 0.				
TA	RGETS		Score	Data T <u>ype</u>	Ref
TA		ille travel distance of a score of 1 if nearby	Score		Ref
	ASSIGN a score of 0 if Level I or Level II reside evaluated or if no individuals live within 1/4 m an area of observed contamination. Assign a population is within 1/4 mile travel distance at	ille travel distance of a score of 1 if nearby and no Level I or Level distance that is not site (i.e., properties II); record the able 20 (HRS Table 5-	Score C		Ref

SI TABLE 17 (HRS TABLE 5-6): ATTRACTIVENESS/ACCESSIBILITY VALUES

Area of Observed Contamination	Assigned Value
Designated recreational area	100
Regularly used for public recreation (for example, vacant lots in urban area)	75
Accessible and unique recreational area (for example, vacant lots in urban area)	75
Moderately accessible (may have some access improvements-for example, gravel road) with some public recreation use	50
Slightly accessible (for example, extremely rural area with no road improvement) with some public recreation use	25
Accessible with no public recreation use	10
Surrounded by maintained fence or combination of maintained fence and natural barriers	5
Physically inaccessible to public, with no evidence of public recreation use	0

SI TABLE 18 (HRS TABLE 5-7): AREA OF CONTAMINATION FACTOR VALUES

Total area of the areas of observed contamination (square feet)	Assigned Value
≤ to 5,000	5
> 5,000 to 125,000	20
> 125,000 to 250,000	40
> 250,000 to 375,000	60
> 375,000 to 500,000	80
> 500,000	100

SI TABLE 19 (HRS TABLE 5-8): NEARBY POPULATION LIKELIHOOD OF EXPOSURE FACTOR VALUES

AREA OF CONTAMINATION		ATTRA	CTIVENESS/A	CCESSIBILITY	FACTOR V	ALUE	
FACTOR VALUE	100	7 5	5 0	2 5	10	5	0
100	500	500	375	250	125	50	0
8 0	500	375	250	125	50	25	0
60	375	250	125	50	25	5	0
4 0	250	125	50	25	5	5	C
20	125	50	25	5	5	5	(
5	50	25	5	5	5	5	(

SI TABLE 20 (HRS TABLE 5-10): DISTANCE-WEIGHTED POPULATION VALUES FOR NEARBY POPULATION THREAT

Travel Distance					Nur	nber o	f peop	e withi	n the tra	vel distai	nce categ	ory		
Category (miles)	Pop.	0	1 to 10	1 1 to 3 0	31 10 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,001	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	Pop
Greater than 0 to $\frac{1}{4}$	0	0	0.1	0.4	1.0	4	13	41	130	408	1,303	4,081	13,034	
Greater than $\frac{1}{4}$ to $\frac{1}{2}$	$\hat{\mathcal{O}}$	0	0.05	0.2	0.7	2	7	20	65	204	652	2,041	6,517	
Greater than $\frac{1}{2}$ to 1		0	0.02	0.1	0.3	1	3	10	33	102	326	1,020	3,258	.01

Sum = 100

C-40

SOIL EXPOSURE PATHWAY WORKSHEET (concluded)

WASTE CHARACTERISTICS

10	Assign the hazardous waste	quantity score calculated for soil exposure 2 and HRS Table 5-2	
	HICK SECTION DITTE		1 C
11.	Assign the highest toxicity va	lug from SI Table 16 · 3 or For the Soil exposure postering	
			154
12.	Multiply the toxicity and hazal Waste Characteristics score f Product	rdous waste quantity scores. Assign the rom the table below: WC Score 0 1 2 3 6	WC = / S

DECIDENT	POPULATION	THREAT	SCODE
HESIVENI	PUPULATION	INKENI	SCURE.

(Likelihood of Exposure, Question 1; Targets = Sum of Questions 2, 3, 4, 5, 6) 55040X 2 LEXIX WC 82-500-

NEARBY POPULATION THREAT SCORE:

(Likelihood of Exposure, Question 7; Targets = Sum of Questions 8, 9)

31422418 LE X T X WC --8-2-,-500--

SOIL EXPOSURE PATHWAY SCORE:

Resident Population Threat + Nearby Population Threat % \$2,500 (Maximum of 100)

AIR PATHWAY

Air Pathway Observed Substances Summary Table

On SI Table 21, list the hazardous substances detected in air samples of a release from the site. Include only those substances with concentrations significantly greater than background levels. Obtain benchmark, cancer risk, and reference dose concentrations from SCDM. For NAAQS/NESHAPS benchmarks, determine the highest percentage of benchmark obtained for any substance. For cancer risk and reference dose, sum the percentages for the substances listed. If benchmark, cancer risk, or reference dose concentrations are not available for a particular substance, enter N/A for the percentage. If the highest benchmark percentage or the percentage sum calculated for cancer risk or reference dose equals or exceeds 100%, evaluate targets in the distance category from which the sample was taken and any closer distance categories as Level 1. If the percentages are less than 100% or all are N/A, evaluate targets in that distance category and any closer distance categories that are not Level I as Level II.

SI TABLE 21: AIR PATHWAY OBSERVED RELEASE SUBSTANCES

Sample ID:		Level I	Level II	Distance from S	ources (mi)	References	
Hazardous Substance	Gase Conc. (μg/m³) Partic	Benchmark Conc. Out (NAAQS or	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RID	% of RID
	Highest Toxicity/ Mobility	Highest Percent		Sum of Percents		Sum of Percents	
Sample ID:		Levell	Level II	Distance from S	Sources (mi)	References	
Hazardous Substance	Toxi	Benchmark Conc. (NAAOS or oility NESHAPS)	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RID	% of RfD
	Highest Toxicity/ Mobility	Highest Percent		Sum of Percents		Sum of Percents	
Sample ID:		Level I	Level II	Distance from :	Sources (mi)	_ References	
Hazardous Substance	Tox	Benchmark Conc. icily/ (NAAQS or bility NESHAPS)		Cancer Risk Conc.	% of Cancer Risk Conc.	RID	% of RID
	Highest Toxicity/	Highest		Sum of		Sum of	
	Highest Toxicity/ Mobility	Highest Percent		Sum of Percents		Sum of Percents	_

AIR PATHWAY WORKSHEET

LI	KELIHOOD OF RELEASE	Score	Data Type	Refs
	OBSERVED RELEASE: If sampling data or direct observation			
•	support a release to air, assign a score of 550. Record observed			
	release substances on SI Table 21.			1
2.	POTENTIAL TO RELEASE: If sampling data do not support a	7		7
	release to air, assign a score of 500. Optionally, evaluate air			
	migration gaseous and particulate potential to release (HRS	1 ~ ~ ~	11	1
L	Section 6.1.2).	500	H	114
		500	ĺ	
	LR =	500		
	RGETS	- ,		
3.	ACTUAL CONTAMINATION POPULATION: Determine the number		1	1
	of people within the target distance limit subject to exposure from a	1	1	1
[release of a hazardous substance to the air.		1	1
ĺ		Į.	1	[
	a) Level I: people x 10 =		1	1
	b) Level II: people x 1 = Total =		14	hu
 	POTENTIAL TARGET POPULATION: Determine the number of	 	+	1
4.	people within the target distance limit not subject to exposure from			
	a release of a hazardous substance to the air, and assign the total		1	
	population score from SI Table 22. Sum the values and multiply the	1	ļ .	
	sum by 0.1.	1 4.81	H	8,9
5	NEAREST INDIVIDUAL: Assign a score of 50 if there are any Level		 '-'	
٠.	I targets. Assign a score of 45 if there are Level II targets but no	}]
	Level I targets. If no Actual Contamination Population exists, assign	,	1	
	the Nearest Individual score from \$1 Table 22.	l /	H	8,9
6.	ACTUAL CONTAMINATION SENSITIVE ENVIRONMENTS: Sum			
	the sensitive environment values (St Table 13) and wetland	}	1	
	acreage values (SI Table 23) for environments subject to exposure			
	from the release of a hazardous substance to the air.			
	Sensitive Environment Type Value			
]]	
	Wetland Acreage Value			1
			}	
			[[1
		\bigcirc		20
7.	POTENTIAL CONTAMINATION SENSITIVE ENVIRONMENTS:			~~~
•	Use SI Table 24 to evaluate sensitive environments not subject to	_		. , ., [
	exposure from a release.	\circ 1		
8.	RESOURCES: Assign a score of 5 if one or more air resources			
	apply within 1/2 mile of a source; assign a 0 if none applies.			
	Commercial agriculture	Ì		
	Commercial silviculture		17	. ,,]
	Major or designated recreation area	\mathcal{L}		14
	<u>, </u>	5.81	H	

SI TABLE 22 (From HRS TABLE 6-17): VALUES FOR POTENTIAL CONTAMINATION AIR TARGET POPULATIONS

[Number of People within the Distance Category											
	Distance from Site	Pop.	Nearest Individual (choose highest)	1 to 10	11 to 30	31 to 100	101 10 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,000 to 3,000,000	Pop. Value
	On a source	0	20	4	17	53	164	522	1,633	5,214	16,325	52,137	163,246	521,360	1,632,455	\circ
	0 to $\frac{1}{4}$ mile	Ð	•	1	4	13	41	131	408	1,304	4,081	13,034	40,812	130,340	408,114	\mathcal{C}
	$>\frac{1}{4}$ to $\frac{1}{2}$	<i>C</i>	2	0.2	0.9	3	9	28	88	282	882	2,815	8,815	28,153	88,153	
	> 1/2 to 1	7	1	0.06	0.3	0.9	3	8	26	83	261	834	2,612	8,342	26,119	0.06
74.5	> 1 to 2 miles	434	0	0.02	0.09	0.3	0.8	3	8	27	83	266	833	2,659	8,326	3
	> 2 to 3 miles	11,707	0	0.009	0.04	0.1	0.4	1	4	12	38	120	375	1,199	3,755	38
	>3 to 4 miles	7,169	0	0.005	0.02	0.07-	0.2	0.7	2	1	28	73	229	730	2,285	7
١	In	Nearest idividual =]	1		1	. L ,,				· I		L	Sum =	4800

References	8,9		
------------	-----	--	--

^{*} Score = 20 if the Nearest Individual is within $\frac{1}{8}$ mile of a source; score = 7 if the Nearest Individual is between $\frac{1}{8}$ and $\frac{1}{4}$ mile of a source.

SI TABLE 23 (HRS TABLE 6-18): AIR PATHWAY VALUES FOR WETLAND AREA

Wetland Area	Assigned Value
< 1 acre	0
1 to 50 acres	25
> 50 to 100 acres	75
> 100 to 150 acres	125
> 150 to 200 acres	175
> 200 to 300 acres	250
> 300 to 400 acres	350
> 400 to 500 acres	450
> 500 acres	500

SI TABLE 24: DISTANCE WEIGHTS AND CALCULATIONS FOR AIR PATHWAY POTENTIAL CONTAMINATION SENSITIVE ENVIRONMENTS

Distance	Distance Weight	Sensitive Environment Type and Value (from SI Tables 13 and 20) 23	Product
On a Source	0.10	x	
		x	
0 to 1/4 mile	0.025	x	
		x	
		х	
1/4 to 1/2 mile	0.0054	x	
		x	
[x	
1/2 to 1 mile	0.0016	×	
		x	
		x	··-
1 to 2 miles	0.0005	X	
		x	
		x	
2 to 3 miles	0.00023	x	
1		X	
		x	
3 to 4 miles	0.00014	×	<u> </u>
		X	
		x	
> 4 miles	0	x	
		Total Environments Score =	0

AIR PATHWAY (concluded)

WASTE CHARACTERISTICS

9.	If any Actual Contamination Tan assign the calculated hazardous of 100, whichever is greater; if the Targets for the air pathway, assissources available to air migration the minimum of t	s waste quantity score or a here are no Actual Contaming the calculated HWO score. All Sources must be to the contamination of 0.5 (1+Rs 6)	score ination pre for the meet to the core in the core	
10.	Assign the highest air toxicity/m	obility value from SI Table	1.0	
11.	Multiply the air pathway toxicity/i quantity scores. Assign the Watable below: [Product]	mobility and hazardous was ste Characteristics score from WC Score	om the	
	100001 0 >0 to <10 10 to <100 100 to <1,000 1,000 to < 10,000 10,000 to <1E + 05 1E + 05 to <1E + 06 1E + 06 to <1E + 07 1E + 07 to <1E + 08 1E + 08 or greater	0 1 2 3 6 10 18 32 56 100	wc = 2	

AIR PATHWAY SCORE:

LE x T x WC 82,500 0,07 (maximum of 100)

SITE SCORE CALCULATION	S	S 2
GROUND WATER PATHWAY SCORE (SGW)	0	0
SURFACE WATER PATHWAY SCORE (Saw)	. 64	.0016
SOIL EXPOSURE (SS)	0	0
AIR PATHWAY SCORE (SA)	,07	. 0049
SITE SCORE $\sqrt{\frac{S_{GW}^2 + S_{SW}^2 + S_S^2 + S_A^2}{4}}$	= ,/ (17 -)	0.04

COMMENTS			
}			
}			
į			
			ļ
		1	-
			ĺ
			1
			-

Reference 1

	POI	TENTIAL HAZAR	DOUS WASTE SITE	<u> </u>	LIDENTIFICATION
SEPA		SITE INSPECT			01 \$1416 02 SITE NUMBER TN D 981473515
R SITE NAME AND LOCA		ELOCATIONANI	JINSPECTION INFOR	TION .	
OI SITE NAME was some P			02 STREET ROUTE NO . OR :	SPECIFIC LOCATION IDE	ENTIFIER
Kennon (Genesc					
03 CITY	U) SILE		Split Log Roa	DE COUNTY	OTCOUNTY OF CONU
Brentwood			TN 37027	Willia	amson $\frac{\text{cool}}{187}$ $\frac{\text{bist}}{\epsilon}$
09 COORDINATES LATITUDE 35 57 25	ьонапио€ 86 45 44 .	IN TYPE OF OWNERS A PRIVATE TO THER .	D B. FEDERAL		COUNTY DE MUNICIPAL UNKNOWN
III INSPECTION INFORM	ATION	D3 YEARS OF OPERA			
1		US TEARS OF OPERA	19781_1978	t.m	MONOWN
1,14,86 MONTH (AT VEAR		BEG	INNING YEAR ENDING YE		
DA AGENCY PERFORMING INSP	PECTION (Chace at mai apply)				
TA EPA TE B EPACE		defeated the states	DIC MUNICIPAL ED	MUNICIPAL CONTRA	CTOR
TE STATE OF STATE	CONTRACTOR	Asomo o' lum	G G OTHER	(\$mec#v	
DS CHIEF INSPECTOR		OB TITLE		07 DRGANIZATA	ON DE TELEPHONE NO
Charles Powers		Field	Coordinator	Superfu	and $\binom{615}{741-6287}$
09 OTHER INSPECTORS		10 TITLE		11 ORGANIZATI	
Ronnie Bowers	·	Enviro	nmental Special	ist Superfu	and (615) 741-6287
					()
	···				()
					()
-			······································		()
13 SITE REPRESENTATIVES IN	TERVIEWED	14 TITLE	15ADDRESS		16 TELEPHONE NO
Wayne McCoy		Consultant	-Edge 4301 Hills	sboro Rd.; N	lash. 613 383-3588
Ralph Mosely		Genesco	Genesco Pa	ark; Nashvil	le (61 5 367-7314
					()
					()
					f 1
					()
17 ACCESS GAMED BY (CART BARE **EPRE BARE	18 TIME OF INSPECTION	19 WEATHER COND	DITIONS		
IV. INFORMATION AVAIL	LABLE FROM				
UI CONTACT		G2 OF Japanes Supani	d∦*,∞.		CO TELEPHONE NO
Charles Powers		TDH&E/Sune	erfund		615 741~6287
GA FERSON RESPONSIBLE FOR	A SITE INSPECTION FORM	25 465 401	UL ORGANIZATION	D' TELEPHONE NO	
Thomas A. Moss		TDH&E	Superfund	(615) 741-	-6287 <u>5 12 87</u>
LEAFORW TOTE 19 T BIS					

POTENTIAL HAZARDOUS WASTE SITE

EIDENTIFICATION				
01 STATE	D 981473515			

SEF	PA	, 0		TION REPORT	1	OF STATE DE SUTE A	UMBER 1473515
II WASTES	TATES, QUANTITIES, AN	DCHARACTER	ISTICS				
O PHYSICAL S	BATES (Check of mer apply)	D2 WASTE CUANT		X A TOXIC	ERISTICS (Crock or rep or	BLE TIHIGHLYN	
I & POWDE	R FINES X F LIQUID	TOMS .	B CORPOSIVE F INFECTION C PAGIGACTIVE G FLAMM. X D PERSISTENT GH KGMITAB		AABLE II K REACT! BLE II LANCOMF	VE 'ATIBLE	
C b other	(Specely)	NO OF DRUMS	800			I M NOT AP	PLICABLE
III. WASTE T	YPE						
CATEGORY	SUBSTANCE N	AME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS		
SLU	SLUDGE						
OLW	OILY WASTE				T		
\$QL	SOLVENTS		Unknown		Organic	solvents.	
P\$2	PESTICIDES						
000	OTHER ORGANIC CH	REMICALS	Unknown		Organic	fillers, adh	esives.
юс	MORGANIC CHEMIC	ALS					
ACD	ACIDS		 	 			····
BAS	BASES		 	 			
MES	HEAVY METALS		 	 	 		
	OUS SUBSTANCES			1	<u> </u>		
D1 CATEGORY	02 SUBSTANCE N		D3 CAS MIMBER	D4 STORAGE/DIS	POSAL METHOD	D5 CONCENTRATION	DE MEASURE CH
SOL	Toluene		108883	 	i∩ pits	unknown	CONCENTER
SOL	Tetrachloroeth	vlene	127184		in pits	unknown	
501	1,1,1 Trichlor		79016		in pits	unknown	
SOL	2 Butanone (MEI		78933		in pits	unknown	
SOL	Xylene		1330207		in pits	unknown	
SOL	Hexane		110543	dumped	in nits	пркрожо	
SOL	1,1,1 Trichlore	gethene	79016	1 " '	in mits	unknown	
\$OL	Acetone		67641		in pits	unknown	
SOL	1,2 Dichloroet	nane	1300216	dumped		unknown	<u></u>
SOL	Benzene		71432	dumped		unknown	
V. FEEDSTO	CKS (See Appendix by CAS Aume	м.					
CATEGORY	01 FEEDSTOC	K NAME	02 CAS NUMBER	CATEGORY	DI FEEDSTO	CK NAME	D2 CAS NUMBER
FDS				FDS			
FDS				FDS			
FOS			1	FDS			
FDS				FDS	· 		
VI. SOURCE.	S OF INFORMATION CH.	Spatifit references in c	June Net: Jampie enavire	1			
	Superfund Files			-			

SEPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

I. IDENTIFICATION

O1 STATE C2 SITE NUMBER

TN D 981473515

VERA		SPECTION REPORT AZARDOUS CONDITIONS AND INCIDENT		981473515
	PART 3 - DESCRIPTION OF RE	AZARDOUS CONDITIONS AND INCIDENT		· · · · · · · · · · · · · · · · · · ·
II. HAZARDOUS CONDITI		770707		
01 Z A GROUNDWATER 03 POPULATION POTENTS		C2 K OBSERVED (DATE	□ POTENTIAL	C. ALLEGED
· ·	· · ·	amination. Population in are		
approximately	410. Site is in Q rd	ovician carbonates with no co	onfining lay	er for
aquifer of co	ncern.		•	:
01 KB SURFACE WATER C3 POPULATION POTENTI		D2 D OBSERVED (DATE) 04 NARRATIVE DESCRIPTION	DE POTENTIAL	I ALLEGED
es voi de moive d'anni		MANAGE DESCRIPTION		
Seep from site	e may enter tributar	y of Little Harpeth River.		
•				
D1 C CONTAMINATION	OF AIR	02-C OBSERVED (DATE)	D POTENTIAL	Z ALLEGED
	ALLY AFFECTED	04 NARRATIVE DESCRIPTION	2.0.22	
01 C D FIRE EXPLOSIVE	* *· -	D2 C OBSERVED (DATE)	D POTENTIAL	C ALLEGED
03 POPULATION POTENTS	ALLY AFFECTED	04 NARRATIVE DESCRIPTION		
·				
01 DE DIRECT CONTAC 03 POPULATION POTENTI		02 T OBSERVED (DATE) 04 NARRATIVE DESCRIPTION	I POTENTIAL	I ALLEGED
63 FOFOSKIION FOIENI.		WARRANTIVE DESCRIPTION		
01 SEF CONTAMINATION	OF SON	02 T OBSERVED IDATE	1 POTENTIAL	C ALLEGED
C3 AREA POTENTIALLY A	FECTED UNKNOWN	04 NARRATIVE DESCRIPTION	2 7 5 12 11 10 10	_ NOLIGEP
Seep leaving s	site. Drums and liqui	ids dumped in pits.		
·· - -		•	· · · -	
D: # G DRINKING WATER		02 \$ OBSERVED (DATE1/28/86)	I POTENTIAL	I ALLEGED
03 POPULATION POTENTI		D4 NARRATIVE DESCRIPTION		
		amination and is used for dri		
Population wit	thin force miles of si	ite not on public water appro	eximately 41	J.
01 DH WORKEP EXPOS	LY AFFECTED	D2 COBSERVED IDATE) D4 NARRATIVE DESCRIPTION	D POTENTIAL	C ALLEGED
D1 I POPULATION EXPO	OSURE INJURY	D2 T OBSERVED IDATE	E POTENTIAL	I ALLEGED
D3 POPUL TION POTENTI	ALLY AFFECTED			
	•			

POTENTIAL HAZARDOUS WASTE SITE

I. IDENTIFICATION

SEPA PART 3 - DESCRIP	SITE INSPECTION REPORT PROPERTY OF HAZARDOUS CONDITIONS AND INCIDENTS	TND	981473515
IL HAZARDOUS CONDITIONS AND INCIDENTS	5 Contract		
D1 C J DAMAGE TO FLORA 04 NARRATIVE DESCRIPTION	02 T OBSERVED (DATE	II POTENTIAL	Z ALLEGED
01 C. K. DAMAGE TO FAUNA 04 NARRATIVE DESCRIPTION INclude April 2 of species?	02 C OBSERVED (DATE)	D POTENTIAL	I ALLEGED
01 T. L. CONTAMINATION OF FOOD CHAIN 04 NARRATIVE DESCRIPTION	02 C OBSERVED (DATE)	D POTENTIAL	I ALLEGED
	<u> </u>		
C1 # M UNSTABLE CONTAINMENT OF WASTES (Seeks Arrest Stoneing results Leating divine)	02 DBSERVED (DATE) 410 OA NARRATHE DESCRIPTION	C POTENTIAL	I ALLEGED
D3 POPULATION POTENTIALLY APPECTED.	THE RESIDENCE OF SOME HOLD		
Drums and liquids dumped in	pits. By admission of company.		
01 T N DAMAGE TO OFFSITE PROPERTY	02 TOBSERVED (DATE)	= POTENTIAL	I ALLEGED
01 TO CONTAMINATION OF SEWERS STORM D	RAINS WV/TPs 02 TOBSERVED (DATE)	_ POTENTIAL	D ALLEGED
		·	
0) AP ILLEGAL/UNAUTHORIZED DUMPING 04 NARRATIVE DESCRIPTION	D2 _ OBSERVED (DATE)	_ POTENTIAL	I ALLEGED
Drums and liquids dumped in	phosphate pits. Site was not a perm	itted landf:	ill.
05 DESCRIPTION OF ANY OTHER KNOWN POTEN	ITIAL OR ALLEGED HAZARDS		
III. TOTAL POPULATION POTENTIALLY AFFE	CTED 410	 	
V COMMENTS			
Residents within a one mile r Brentwood at Genesco's expen	adius of the site have been run municuse.	cipal water	from
V SOURCES OF INFORMATION CHARGE STATE	ncen e pi szerences pemperanouso rennos		
State Superfund Files			
ocace outelling title?			

≎ EPA	PO.		RDOUS WASTE SI	TE	I. IDEN TION DISTATE ITE NUMBER
VLIA	PART 4		ESCRIPTIVE INFORM	RATION	TN D 981473515
II PERMIT INFORMATION					
DI TYPE OF PERMIT ISSUED (Check at that about)	D2 PERMIT NUM	MBER 03 DATE	ISSUED OF EXPIRATION D	DATE 05 COMMENTS	
C'A MPDES					
TB UIC					
IC AIR					
I D RCRA					
TE RORA INTERIM STATUS					
TF SPCCPLAN					
□ G STATE SEARCHY					
CH LOCAL					
I OTHER Species					
XJ NONE					
III. SITE DESCRIPTION					
01 STORAGE DISPOSAL (Crock of their apply)	02 AMOUNT	03 UNIT OF MEASURE	GA TREATMENT (Chares on	i Shir addryi	05 OTHER
C A SURFACE IMPOUNDMENT		· 	C A INCENERATION		D. A. BUILDINGS ON SITE
☐ B. PILES ☐ C DRUMS, ABOVE CROUND			D B UNDERGROUND		
C D TANK, ABOVE GROUND			C C CHEMICAL/PHY	SICAL	
☐ E TANK, BELOW GROUND			DE WASTE OIL PRO	CESSING	D6 AREA OF SITE
TE LANDFILL	800	drums_	E F SOLVENT RECO		
G LANDFARM		·	G G OTHER RECYCL	_ING/RECOVERY	(Acres
TH OPEN DUMP			E H OTHER	(Specay)	
I DIHER				·	
Drums and liquid s dum	iped in pho:	sphate pits	on site and co	overed.	
IV. CONTAINMENT					
D1 CONTAINMENT OF WASTES (CHIER MIN)					
I A ADEQUATE SECURE	I B MODERA	TE ICI	INADEQUATE POOR	Z D. INSECT	URE, UNSOUND DANGEROUS
02 DESCRIPTION OF DRUMS, DIKING LINERS. Drums dumped in phosp					,
	nace pres c	Jir Site.			
V. ACCESSIBILITY					
01 WASTE EASILY ACCESSIBLE TYE 02 COMMENTS	ES X NO				
VI. SOURCES OF INFORMATION CH	###T C 10101995C#3 # C 34	ipre hes sample energis (e)	z 200		
State Superfund Files					

O L.DV	POTE	NTIAL HAZAF			re		NTIFICATION	
SEPA	PART 5 - WATER	SITE INSPEC' I, DEMOGRAPHI			ENTAL DATA	T	N D 98147	3515
IL DRINKING WATER SUPPLY								-
01 TYPE OF DRINKING SUPPLY		C2 STATUS				03	DISTANCE TO SITE	
(Chaca as asperator) SURFACE	WELL	ENDANGERE	D AFFECTE	ם מ	MONITORED	1		
COMMUNITY A 38	B 🗆	A D	₽ □		c D		<u> </u>	n.)
NON COMMUNITY C. D.	Ď 🏗	0.0	E 🛱		FD	В	(r	nı)
III. GROUNDWATER								
D1 GROUNDWATER USE IN VICINITY (CARC	a design)							
(III A ONLY SOURCE FOR DRINKING	D B DRINKING (Other seutral auditor COMMERCIAL IN pro-sent auditor agree seutral in the sent auditor seutral s	IDUSTRIAL, IRRIGATIO	-		INDUSTRIAL, PARIGA	TION (C 0 MOTUSED UM	JSE ABLE
02 POPULATION SERVED BY GROUND W.	ATER410		03 DISTANCE TO	HEARES	ST DRINKING WATER	MEIT	≺0.25 (r	(ער
D4 DEPTH TO GROUNDWATER	05 DIRECTION OF GRO	DUNDWATER FLOW	DE DEPTH TO AD		OF AQUIFER	9	08 SOLE SOURCE	AOUIFER
<u>30(ft)</u>	<u>Unknow</u>	<u>rn</u>	30	(ff)	Unknow	L (ppd)	₽ YES	D NO
IO RECHARGE AREA D YES COMMENTS D NO IV. SURFACE WATER O) SURFACE WATER USE (CAREE MAG)			T YES CO	REA DMMENT	rs			
A RESERVOIR RECREATION DRINKING WATER SOURCE	IMPORTAN	N. ECONOMICALLY VT RESOURCES	□ с сом	MERCIA	AL, INDUSTRIAL	<u> </u>	D NOT CURRENT	LY USED
D2 AFFECTED POTENTIALLY AFFECTED I					AFFECTE)	DISTANCE TO S	ITE
	of Little Ha	rpeth River			5		0.1	(mi)
Little Ha	rpeth River		<u></u>			_		(mi)
								(m ₁)
V. DEMOGRAPHIC AND PROPER DI TOTAL POPULATION WITHIN	TY INFORMATION			1.02	DISTANCE TO NEAR	EST POP	II ATION	
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03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE		04 DISTANCE TO	NEARES	T OFF SITE BUILDIN	ū		
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POTENTIAL HAZARDOUS WASTE SITE

1	1. IDENTIFICATION				
Į	DISTATE	Cr SITE NUMBER			
	L IN_	D 981473515			

SEPA	DADT 6.1	SITE INSPEC WATER, DEMOGRAPI	CTION REPORT		IN D 98	
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VI ENVIRONMENTAL INFORM. O) PERMEABILITY OF UNSATURATED.						
		10=4 = 10=4 cm/sec 3	- C 10:4 10:1	T D GREATER	THAN 10" Jam ser	
D2 PERMEABILITY OF BEDROCK (Chace		TO TO TEMPSEE		THE Z D GREATER		
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	10" 6 cm sec)	RELATIVELY MAPERMEAS	110-7-10-	** persect	rGrasio: man FD.h = cm arc;	
G3 DEPTH TO BEDROCK	D4 DEPTH OF COM	NTAMINATED SOIL ZONE	05 SOIL P	H		
10(n)	1 _	(11)				
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09 FLOOD POTENTIAL	10		_1	<u> </u>	 	
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11 DISTANCE TO WETLANDS IS BOTO	Angelini .		12 DISTANCE TO CRUT	TICAL HABITAT IN MEMBER	TE IDOCAL	
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13 LAND USE IN VICINITY						
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14 DESCRIPTION OF SITE IN RELATION	TO SURROUNDING T	TOPOGRAPHY				
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residences in the	vicinity.					
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VII. SOURCES OF INFORMATIO	N Car spaces research	CO) O C SINO MO) LOTTER ANALYSIS	reports:			
State Superfund F	iles					

SEPA	PA	SITE INSPECTION REPORT ART 8 - SAMPLE AND FIELD INFORMATION	TN D 981473515
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III. FIELD MEASUREMENTS	TAKEN		
O: TYPE	02 COMMENTS		
IV. PHOTOGRAPHS AND N	· · · · · · · · · · · · · · · · · · ·	C2 PN CUSTODY OF	
	ATION OF MAPS	IName of organization or illowing	
T YES T NO			
V OTHER FIELD DATA CO	LLECTED Present April 1944	t' C'R A)	
		pled within the vicinity of the s	ite as well as pits
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State Superfur	od Files		

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POTENTIAL HAZARDOUS WASTE SITE

I. IDENTIFICATION

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I CURRENT DWNER(S)	SEPA		SITE INSP	SITE INSPECTION REPORT		
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State Superfund Files	State Superfund Files					

POTENTIAL HAZA		ARDOUS WASTE SITE I IDENTIFICATION					
SEPA		SITE INSPECT		TION REPORT OR INFORMATION		OVSTATE 025-TEN MBER TN D 981473515	
II CURRENT OPERATOR Promise a prise rand Angel Come				OPERATOR'S PARENT COMPANY			
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OB YEARS OF OPERATION	OS NAME OF OWNER						
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IV SOURCES OF INFOR	RMATION (Care absocute reterran						
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ŞEPA	-		ECTION REPORT	1 1	TN D 981473515	
	PART 9 - GENERATOR/TRANSPORTER INFORMATION					
II ON-SITE GENERATOR						
U: NAME		G2 D+B NUMBER				
CUISTREET ACCIDESS IN O Box MED + MIZ I		04 SIC CODE		,		
OS CITY	OG STATE	C7 ZIP COD€		ř		
III. OFF-SITE GENERATOR(S)	<u> </u>	<u> </u>				
O3 NAME		02 D+B NUMBER	D1 NAME		07 D+ B NUMBER	
General Adhesives						
03 STREET ADDRESS IF 0 Box #F2+ orc.;		04 SIC CODE	03 STREET ADDRESS IP D Box RFD+ oic i		04 SIC CODE	
6100 Centennial Blvd.		1	ļ			
os city Nashville	. DE STATE	07 ZIP CODE 37202	05 Cff ¥	D6 STATE	07 ZIP CODE	
C1 NAME	·	C2 D+B NUMBER	O1 NAME	<u></u>	02 D+ B NUMBER	
Genesco						
03 STREET ADDRESS (F G Box RFD # etc.)		04 SIC CODE	DJ STREET ADDRESS (P O Bos RED F. of)		D4 SIC CODE	
Genesco Park						
05 CiTY		D7 ZIP CODE	05 СПУ	O6 STATE	07 ZIP CODE	
Nashville	TN	37202				
IV. TRANSPORTER(S)						
D) NAME		D2 D+8 NUMBER	D1 NAME		C2 D+B NUMBER	
DI STREET ADDRESS (P.O. Box RFD+ exc.)		D4 SIC CODE	03 STREET ADDRESS IP O Box RFD+ MC	,	04 SIC CODE	
05 CITY	OS STATE	D7 ZIP CODE	05 CITY	O6 STATE	67 ZIP CODE	
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POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 10 - PAST RESPONSE ACTIVITIES

LL	I IDENTIFICATION		
L	STATE	OF SITE NUMBER	
ł	TN	0 981473515	

	PART 10 - PAST RESPONSE ACTIVITIES		IN 10 981473515
IL PAST RESPONSE ACTIVITIES			
O1 D A WATER SUPPLY CLOSED 04 DESCRIPTION	GZ DATE	C3 AGENCY	
01 T B TEMPORARY WATER SUPPLY PROV 04 DESCRIPTION	VIDED 02 DATE	D3 AGENC)	
01 % C PERMANENT WATER SUPPLY PROV	VIDED 02 DATE	D3 AGENCY	Superfund
	un to residents within one mile	_	
01 C D SPILLED MATERIAL REMOVED 04 DESCRIPTION	02 DATE	D3 AGENCY	
D1 I E CONTAMINATED SOIL REMOVED 04 DESCRIPTION	D2 DATE		
01 C F WASTE REPACKAGED 04 DESCRIPTION	02 DATE	03 AGENCY	
01 C G WASTE DISPOSED ELSEWHERE 04 DESCRIPTION	02 DATE	03 AGENCY	
01 TH ON SITE BURIAL 04 DESCRIPTION	02 DATE		
01 TE IN SITU CHEMICAL TREATMENT 04 DESCRIPTION			
D1 T J IN SITU BIOLOGICAL TREATMENT 04 DESCRIPTION	02 DATE		
01 C K IN SITU PHYSICAL TREATMENT 04 DESCRIPTION	02 DATE	C3 AGENCY	
01 T. L. ENCAPSULATION 04 DESCRIPTION	02 DATE	D3 AGENCY	
01 TM EMERGENCY WASTE TREATMENT 04 DESCRIPTION	O2 DATE	D3 AGENCY	
DI IN CUTOFF WALLS D4 DESCRIPTION	C2 DATE	C3 AGENCY	
D4 DESCRIPTION	TERDIVERSION D2 DATE 1/86 constructed to limit off site co		
O1 T P CUTOFF TRENCHES/SUMP O4 DESCRIPTION	C2 DATE	03 AGENCY	
D1 T O SUBSURFACE CUTOFF WALL 04 DESCRIPTION	C2 DATE	03 AGENCY	

I IDENTIFICATION POTENTIAL HAZARDOUS WASTE SITE O1 STATE DE SITE NUMBER SITE INSPECTION REPORT D 981473515 ΤN PART 10 - PAST RESPONSE ACTIVITIES IL PAST RESPONSE ACTIVITIES 01 _ R BARRIER WALLS CONSTRUCTED 04 DESCRIPTION D3 AGENCY ___ O2 DATE 01 T S CAPPING/COVERING 04 DESCRIPTION D2 DATE 03 AGENCY_ DI C T BULK TANKAGE REPAIRED Q2 DATE 03 AGENCY.... 04 DESCRIPTION 01 G L GROUT CURTAIN CONSTRUCTED 04 DESCRIPTION D2 DATE D3 AGENCY___ 01 I V BOTTOM SEALED 04 DESCRIPTION D2 DATE ___ 03 AGENCY___ 01 D W GAS CONTROL 04 DESCRIPTION D2 DATE 03 AGENCY___ D1 Z X FIRE CONTROL D2 DATE ___ D3 AGENCY___ 04 DESCRIPTION 01 Z Y. LEACHATE TREATMENT 04 DESCRIPTION 02 DATE ___ D3 AGENCY__ 01 Z AREA EVACUATED DA DESCRIPTION D2 DATE 03 AGENCY___ 03 AGENCY_ D1 2 1. ACCESS TO SITE RESTRICTED D2 DATE ___ 04 DESCRIPTION 01 Z 2 POPULATION RELOCATED 04 DESCRIPTION D2 DATE D3 AGENCY ___ 01 II 3 OTHER REMEDIAL ACTIVITIES 04 DESCRIPTION D2 DATE D3 AGENCY_ III SOURCES OF INFORMATION IC IS SOURCE INFORMATION IN ISSUED AND INC. SERVING AND INC. SERVING.

State Superfund Files: Geraghty and Miller 1986 Report



POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 11 - ENFORCEMENT INFORMATION

I IDENTIFICATION

C1 STATE C2 SITE NUMBER

TN D 981473515

VLIA	PART 11 - ENFORCEMENT INFORMATION	IN [U 981473515
II. ENFORCEMENT INFORMATION		
DI PAST REGULATORY/ENFORCEMENT ACTION (ONC ESY	
02 DESCRIPTION OF FEDERAL STATE LOCAL REC	SULATORY/ENFORCEMENT ACTION	÷ ;
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III. SOURCES OF INFORMATION ICAN MOCE	ec reterences o p. stere less summe energial reports:	

KENNON SITE

Site No. TND 981473575

Reference No. 1

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94-508

KENNON SITE (GENESCO)

<u>Date</u>	EVENT
1/15/86	Monitoring well installation begins. Areas of suspected pits excavated. Samples of water, waste, and soil obtained.
1/24/86	Further excavation of suspected pits to determine extint of dumping. Monitoring well installation continues. Local person informes state personnel of nearby wells and springs being used for drinking water.
1/28/86	Sampling of offsite Hacket Spring and Fletcher Well. Seep below site is also sampled. Full priority pollutants analysis is requested.
1/29/86	Resampled Fletcher Well (previously sampled 1/28/86) due to concern of owner over taking sample from his holding tank.
2/7/86	Resample Hacket Spring after heavy rain.
2/11/86	Sample Hacket Spring for verification of analysis by State Laboratory. Sample Myatt well also.
2/12/36	Sample offsite drinking water sources - Steve Smith Spring, Pewitt Well, Fischer Well, Johnson Well, Stubblefield Spring.
2/13/86	Sample offsite drinking water sources - Glass Well, Levine Well. Sharp Spring, Reece Smith Spring.
2/14/86	Sample offsite drinking water sources - Foster Well, Little Harpeth River at Moores Lane Bridge.
2/17/86	Sample offsite drinking water sources - Hacket Spring at inside Tap, Allen Well, Primm Spring, Sullivan Well, Legieza Well.
2/18/86	Meeting with Genesco Consultants to discuss sampling plans for Shallow Monitoring Wells onsite. Determined areas of soil borings and offsite shallow monitoring wells. Charcoal filter was installed at Hacket's home by Genesco.
2/21/86	Sample Hacket water supply at Tap after installation of the charcoal filter. Split one sample of Monitoring well #8 onsite with Genesco Consultant. Sample spring below Edgar Johnson's home.
2/24/86	Resample Legiaza well to verify results with State Laboratory.

Date	Event
2/25/86	Sample offsite drinking water sources - Denny Well, Waggoner Well, Lowe Well, Hackett Creek (above spring), Hackett Creek (below Spring), Little Harpeth (below Hackett Creek), Dickie Well, Beyer Well, Clark Well, Dalton Well.
	Sampled offsite drinking water sources - Scott Well, Myatt Well, Mallory Well, Howe Well, Carson Spring.
2/26/86	All individuals whose Analysis had been returned were called and informed of these results.
	Sampled offsite drinking water sources - Turner Well, Clark Well, Burris Well.
1/28/86	Sample offsite drinking water sources - Atkinson Well, Denny Well (resampled), Shaw Well.
3/3/86	Drilling of shallow monitoring wells continue. Genesco consultants are running an Electro Magnetic survey of the site to determine areas of dumping.
3/4/86	Genesco Consultants are running a ground penetrating radar survey. Drill crew is still working. Delivered sample results to residences.
3/5/86	Sample Holt Well.
3/6/86	Talked to several citizens about there wells. (Outside 3 mile radius).
3/7/86	Sample offsite drinking water sources - Mallory Well, Myatt Well, Pewitt Well, Anderson Well.
3/11/86	Sample offsite drinking water sources - Dennison Well, Harmon Well.

RB/lag Customs House #8

KENNON SITE/GENESCO SAMPLING

FAMILY NAME	SPRING/WELL	SAMPLE DATE	RESULTS R	EPORT ON FILE
Hackett	Spring	1-28-86 2-7-86 2-11-85 2-17-86 2-21-86	Detected Detected Detected Detected No results ye	Yes Yes Yes Yes
Fletcher	Well	1-29-86	Non-detected	Yes
Myatt	Well -	2-11-86	Non-detected	Yes
Smith (Steve)	Spring	2-12-86	Non-detected	Yes
Pewitt	Well	2-12-86	Non-detected	Yes
Fisher	Well	. 2-16-86	Non-detected	Yes
Johnson	Well	2-16-85	::Non-detected	Yes
Stubblefield (Younger & Stubblefield)	Spring	2-12-86	Non-detected	Yes
Glass	Well	2-13-86	Non-detected	Yes
Foster	Well	2-14-86	Non-detected	Yes
Levine	Well	2-13-86	Non-detected	Yes
Sharp/Farrar	Spring	2-13-86	Non-detected	Yes
Smith (Reece)	Spring	2-13-86	Non-detected	Yes
Allen	Well	2-17-86	Non-detected	Yes
Primm	Spring	2-17-86	Non-detected	Yes
Sullivan	Well	2-17-86	Non-detected	Yes
Legieza	Well	2-17-86	Detected	Yes
Little Harpeth	River	2-14-86	Non-detected	Yes

CHRONOLOGY - KENNON (GENESCO SITE)

May 21, 1985

By a letter dated 5/21/85 signed by Ralph Mosley, Genesco-Inc., Genesco Park, Nashville, Tennessee 37202 notified the Division of Solid Waste Management of a chemical waste site once used by a division of Genesco, Inc. (General Adhesives). The site is on a farm owned by Emmett N. Kennon. Genesco, Inc. solicited the assistance and approval of TDHE with respects to certain actions. Genesco indicated that some of the waste was buried in barrels (50 - 80 barrels) and the remainder (44,000 gallons) was poured into a phosphate pit or pits. Genesco, Inc. stated that they believed the waste contained water based adhesives and may have contained acetone, ethyl acetate, hexane, methylene chloride, methvethyl ketone, rubber solvent, toluene, trichlorolthane, trichloroethylene, and organic Genesco, Inc. expressed the intent to excavate, exhume, analyze and dispose of contaminated materials.

May 31, 1985

Don Shackleford, Head of Superfund Section, Barry Atnip, Field Coordinator, Superfund, Ralph Mosley, Genesco, and Wayne McCoy, Resource Consultant met to discuss the site. Genesco indicated that they were not sure if they really had a problem or if there was a problem they believed that it possibly was not very extensive. They agreed to submit an investigation plan by August 15, 1985.

July 2, 1985

Barry Atnip, Coordinator Superfund, Ralph Mosley, Genesco, Ed Wilson and Mark Levy of Geologic Associates, Edgar Johnson (Kennon Foreman) and Emmett Kennon made a vist to the site. This was a preliminary site investigation to visually assess the site. The trip report stated in part that there were no houses near, utility water available to homes in the area and pits were covered and sown in grass.

August 13, 1985

A proposed plan of investigation dated August 9, 1985 was received.

August 22, 1985

Barry Atnip, Coordinator, Superfund, Todd Hughes, Geologist, Superfund and Charles Powers, Coordinator, Superfund met to review the proposed plan of investigation. Several revisions were agreed on as being needed.

August 28, 1985

A letter to Ralph Mosley, Genesco, dated August 28, 1985 signed by Charles H. Powers stating the required revisions of the proposed plan of investigation was mailed.

September 13, 1985

As requested by Ralph Mosely, Genesco. Todd Hughes, Geologist, Wayne McCoy of Resource Consultants and Charles Powers, Coordinator, Superfund met to discuss the required revisions to the site investigation plan.

September 25, 1985	A revised proposed plan of investigation dated September 20, 1985 was received from Genesco with cover letter from Ralph Mosely to Charles Powers. The plan included all the required revisions.
October 2, 1985	By letter dated October 2, 1984 from Charles Powers, Superfund to Ralph Mosely, Genesco, the revised plan of investigation dated September 20, 1985 was approved.
October 9, 1985	Charles Powers, was notified by phone by Ralph Mosely that Task A and B had been started.
December 12, 1985	Charles Powers, Coordinator, Todd Hughes, Geologist, Ralph Mosely, Genesco, Wayne McCoy Rsource Consultants, and Mark Levy of Geologic Associates met for an update on the work. Wayne McCoy stated that Task A and B was completed. They presented a map indicating locations of trenches and proposed locations of wells for installation of piezometers. The start of the well drilling and pit excavation for exact location and testing would start immediately after January 1, 1986.
December 23, 1985	Received from Ralph Mosely, Genesco to Charles Powers, Superfund a ground water monitoring configuration which Todd Hughes had requested.
January 6, 1986	Todd Hughes and Charles Powers sent letter dated January 6, 1986 to Ralph Mosely stating our concerns relative to the kind of pipe proposed to be used and that if the wells were to be used for long term sampling then a different kind of pipe must be used.
January 14, 1986	Charles Powers, Coordinator and Ronnie Bowers, Superfund made a site visit and joined Wayne McCoy of Edge and Ralph Mosely, Genesco. Geologic Associates started drilling the wells.
January 17, 1986	Ronnie Bowers, Superfund and Charles Powers, Superfund made a site visit. We saw Mr. Hobbs of Geologic Associates. Two wells had been completed and a third well started.
January 22, 1986	Excavation of the pits for sampling started. Ronnie Bowers and Todd Hughes collected samples for Superfund. Geologic Associates did sampling for Genesco.

January 27, 1986

Meeting with Genesco, Inc. Don Shackleford, Todd Hughes, Ralph Mosely, Wayne McCoy, Ronnie Bowers, Mark Levy and Charles Powers attended. This was a session of updating. It

appeared that the problem was much larger than expected. Sampling was discussed. We became aware that there were wells and springs in the area used for drinking water. An

immediate sampling plan and informatrion to homeowners was initiated. This included immediate samples of Mr. Hackett's and Dr. Fletcher's drinking water.

Ralph Mosely stated that the transport of waste was by Mr. Kennon driver and truck and possibly a vehicle owned or operated by Genesco.

January 28, 1986

Sampling was started on Mr. Hackett's spring. A complete list of water supply sampling and dates are attached. This list is complete up to 2-14-86. Sampling of water supply is continuing as of February 25, 1986.

February 11, 1986

Laboratory report received relative to Hackett's spring. Genesco, Inc. made plan and commitment to furnish bottled water to all households in the area if they wanted the service.

February 13, 1986

State Laboratory verified sample results of Hacketts Spring. Dr. Michael T. Bruner, Assistant Commissioner, Department of Health and Environment issued a press release.

February 18, 1986

A charcoal filter system installed in Hacketts Water supply.

February 19, 1986

An update meeting with the following present: Levy, Seaborg, Kennon, Mosely, McCoy, Shackleford, Roland, Hughes, Powers, Bowers and Ault. Mr. Shackleford stated that we would prepare an order and would attempt to get it through the system in one (1) month. Mr. Kennon, in response to a question, stated that to the best of his knowledge no one else used the site for a dump.

A letter signed by James Ault, Director of Superfund dated February 19, 1986 to Mr. Kennon and Ralph Mosely requesting them to respond to us relative to all known responsible parties.

February 24, 1986

Dr. Michael T. Bruner, Assistant Commissioner attended the Brentwood City Commission meeting and presented the state's position.

DS/sdm/CH-8

KENNON SITE GENESCO

TND 981473515

SITE SUMMARY

The Kennon Site (Genesco) is located near the junction of Split Log Road and Wilson Pike east of Brentwood in Williamson County, Tennessee.

The site is on the Kennon farm in an area of old phosphate pits where in 1978 General Adhesives, a subsidiary of Genesco, dumped approximately 800 drums of organic solvents, organic fillers, and adhesives. The pits were then filled. The state was informed of this unregistered landfill by Genesco in 1985. Chemicals detected on site at appreciable levels in 1986 sampling were toluene; tetrachloroethylene; 1,1,1 trichloroethylene; 2 Butanone (Methyl ethyl ketone); xylene; hexane; 1,1,1 trichloroethene; acetone; 1,2 dichloroethane; and benzene.

Several private wells are still in use within three miles of the site and ground water contamination was discovered in early 1986. Residents with wells within a one mile radius (a population of approximately 118) were provided with bottled water at their discretion by Genesco until water lines could be run from Brentwood. Brentwood water is supplied by Metro Nashville and Harpeth Valley Utilities. The total population within three miles on groundwater prior to remedial action of running water lines was 410.

RCRA SUMMARY KENNON SITE (GENESCO) TND 981473515

The Kennon Site (Genesco) is a farm with phosphate pits that was used to dump approximately 800 drums of organic solvents, fillers, and adhesives in 1978.

The site was never registered as a landfill and did not have a TSD permit.

TAM/16



Facility name: Kennon Site (Genesco) TND 981473515
Location: Brentwood, Williamson County, Tennessee
EPA Region: IV
Person(s) in charge of the facility: Emmett Kennon
Ralph Mosely, Genesco
Name of Reviewer: Thomas A. Moss Date: 4/30/87
General description of the facility:
(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the
tacility; contamination route of major concern; types of information needed for rating; agency action, stc.)
The Kennon Site (Genesco) is a drum disposal site used by General Adhesives,
a subsidiary of Genesco, in 1978 to dispose of approximately 800 drums of
organic solvents, fillers, water based adhesives by dumping them in phosphate
pits and covering the pits at the site. The aquifer of concern is a car-
bonate, fracture-based, solutionally enlarged aquifer. A population of
approx 410 persons were on private wells within 3 miles of the site prior to
the remedial action of water lines being run.
Scores: $S_{M} = (S_{gw} = S_{sw} = S_{a} = NR)$ $S_{FE} = Not Rated$ $S_{DC} = Not Rated$

FIGURE 1 HRS COVER SHEET

Kennon Site IND 981473515

(Section) <u>.</u> 7 4.0 5 7 ١ 0 MALL Score 5 Ü ا ق ھ 26 ġ c) a. Q 2 C. 10 24,795 α Score 43. 9 20 59 5 15 45 きって . 0440 * 2 -· · m -4 .. 25 , (चेंछ) £ Total Weste Charzoleristics Score Characteristics Score If observed release is piven a score of 45, proceed to line piven z score of 0, procesd to line Ground Weter Route Work 72 31 5 5 6 Josel Temers Score ö 0 (3) Assigned Value 100 (Circle Che) en en 351 16 n **60** 60 n C. 20 安徽 $\{\vec{a}\}_{\{\vec{a}\}}$ N 9 2 ~ NN N н × • (r) r-Total Route **NOTION** मीह्य o. 9 9 0 9 9 0 044 O 0 1 н 364 38315 rionari Turnari i.... Toxicity/Persistence Distance to Nearest Well/Population Served = Waste Characteristics Route Characteristics Depth to Agultor of Permeability of the Unsaturated Zone Ground Water Use fi poserved release HELETOOUS WESTE CURNITY ត់ Observed Release Ne: Precipitation ų Physical State $[\bar{\phi}]$ بر. 4 RATING FACTOR Containment Concern S120121 #80.861 1 2 F Line [=] 4 (<u>4</u>) [7] ļ

آآ 111 211 (0) **₩OEK** GURE 2 ROUTE ERUBIA TUCA RETAW CNUCAB

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		Surface Water Route Work S	heet			_
Rating Factor		Assigned Value (Circle One)	Multi-	Score	Max Score	Ref. (Section)
Observed Re	lease	O 45	1	0	45	4.1
1		n a value of 45, proceed to line a value of 0, proceed to line				
Route Character Facility Stop	teristics be and intervel	ning 0 ① 2 3	1	1	3	4.2
1-yr, 24-hr. Distance to Water	Raintall Nearest Surfa	•	1 2	2 4	3 6	
Physical Sta	ite	0 1 2 ③	1	3	3	
		Total Poute Characteristics Score	e	10	15	
3 Containment		0 1 2 🗿	1	3	3	4.3
Weste Charac Toxicity/Per Hazardous V Quantity	sistence	0 3 6 9 12 (3 18 0 1 2 3 (2) 5 6 7	1 B 1	15 4	18 8	4.4
	-	Total Waste Cheracteristics Score	e	19	26	
5 Targets Surface Wat Distance to Environmen Population S to Water In Downstrean	a Sensitive at erved/Distance take	D 1 2 3 D 1 2 3 P 12 16 18 20 24 30 32 35 40	3 2 1	6 0	9 6 40	4.5
		Total Targets Score		6	55	
S If line 1 is If tine 1 is	45, multiply [] C, multiply [2]			3,420	64.250	
Divide fine 6	by 64,350 at	חס שעונים אין 100	S _{sw} -	5,3		

FIGURE 7
SHREADE WATER BOUTE WORK SHEET

NOT RATED

		Air Route Work Sheet		Kennon Si IND 98147	
	Rating Factor	Assigned Value (Circle One)	Multi- plier	Score Max.	
	Observed Release	0 45	1	45	5 1
	Date and Location:			·———	' ' '
	Sampling Protocol:				
	If line 1 is 0, the S ₈ If line 1 is 45, then p	= 0. Enter on line [5] . roceed to line [2] .			
2	Waste Characteristics Reactivity and	0 1 2 3	1	3	5.2
	Incompatibility Toxicity Hazardous Waste Quantity	0 1 2 3 0 1 2 3 4 5 6 7	3 8 1	9 8	
		Total Waste Characteristics Score		20	
3	Targets Population Within 4-Mile Radius Distance to Sensitive Environment) 0 9 12 15 18) 21 24 27 30 0 1 2 3	1 2	30 6	5.3
	Land Use	0 1 2 3	1	3	
) '-				
		Total Targets Score		39	
4	Multiply 1 x 2 x [3		35,100	
5	Divide line 4 by 35.10	0 and multiply by 100	S a =		

FIGURE 9
AIR ROUTE WORK SHEET

	s	\$ ²
Groundwater Route Score (Sgw)	43.2	1866.24
Surface Water Route Score (S _{3w})	5.3	28.09
Air Route Score (Sa)	Not Rated	Not Rated
$s_{gw}^2 + s_{sw}^2 + s_a^2$		1894.33
$\sqrt{s_{gw}^2 + s_{sw}^2 + s_a^2}$		43.5
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		25.2

FIGURE 10 WORKSHEET FOR COMPUTING S_M

-

	Fire	and			SIO		orx	Sni	eet		Kennon INN 981	Site 473515	
Rating Factor	Α				/ a lu					Multi- pher	Score	Max. Score	Ref Section:
Containment	1					3	·			1		3	7.1
2 Waste Characteristics													7.2
Direct Evidence	O			3						1		3	
ignitability	0	1	_	3						1		3	
Reactivity			2							1		3	
Incompatibility Hazardous Waste Quantity	0	1	_	3	4	5	5	7	8	1		3 8	
	Total Was	ite	Cha	irac	teri	stic	 s S	cor	— <u>—</u>			20	
3 Targets										<u></u>			7.3
Distance to Nearest Population	0	1	2	3	4	5				1		5	
Distance to Nearest Building	0	1	2							1		3	
evificance to Sensicial transmission and	·	1	2							1		3	
Land Use		1		3		_				1		3	
Population Within 2-Mile Radius					4					1		5	
Bulldings Within 2-Mile Radius	0	1	2	3	4	5				1		5	
								٠					
									-				
	Tot	al 1	arg	ets	- Sc	ore						24	/-
Multiply 1 x 2 x 3]											1,440	
5 Divide line 4 by 1,440 a	and multiply	bу	10	0					s	FE =			

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

NOT RATED Kennon Site Direct Contact Work Sheet TND 981473515 Assigned Value Multi-Max. Ref. Rating Factor Score (Circle One) plier Score (Section) Observed Incident 45 0 1 45 8.1 If line 1 is 45, proceed to line 4 If line [1] is 0, proceed to line [2] 2 Accessibility 0 1 2 3 3 8.2 3 Containment 0 15 1 15 8.3 Waste Characteristics 0 1 2 3 5 Toxicity 15 8.4 3 Targets 8.5 Population Within a 20 1-Mile Radius 0 1 2 3 12 Distance to a Critical Habitat Total Targets Score 32 6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply $2 \times 3 \times 4 \times 5$ 21,500 Divide line 6 by 21,600 and multiply by 100 Spc -

FIGURE 12 DIRECT CONTACT WORK SHEET

_ -

DOCUMENTATION RECORDS FOR HAZARD RANKING SYSTEM

FACILITY NAME: Kennon Site (Genesco) TND 981473515

FACILITY DESCRIPTION: Phosphate pits on farm filled with dumped liquids and

drums and covered.

LOCATION: Brentwood, Tennessee

DATE SCORED: April 28, 1987

PERSON SCORING: Thomas A. Moss

PRIMARY SOURCE(S) OF INFORMATION (e.g., EPA region, state, FIT, etc.):

State Superfund Files

FACTORS NOT SCORED DUE TO INSUFFICIENT INFORMATION:

Air, Fire and Explosion, Direct Contact

COMMENTS OR QUALIFICATIONS:

Water lines have been run to houses that were on private wells within a one-mile radius of the site.

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

Trans-1,2-dichloroethene; toluene; 1,1,-dichloroethane; and 1,1,1-trichloroethane detected in Hackett Spring and on site monitoring wells by State Superfund sampling (Ref. 1, 2) and are known to be toxic (Ref. 3, 4). Background well (Johnson) showed no contamination (Ref. 1, 2).

Rationale for attributing the contaminants to the facility:

Contamination found in monitoring wells on site, no contamination found in background well (Ref. 1).

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifer(s) of concern:

The aquifer of concern would be the Ordovician limestone formations (Ref. 5, 6) of the Bigby-Cannon Limestone (70-130 ft. thick), Hermitage Formation (50-150 ft. thick), and Carters Limestone (70 ft. thick). The majority of private wells in the area have depths of 150-350 ft. (Ref. 7) and would be completed in the Hermitage Formation or Carters Limestone (Ref. 5, 6) (50-100 ft. thick). See attachment 2A for further discussion of aquifer of concern.

Depth(s) from the ground surface to the highest seasonal level of the saturated zone (water table(s)) of the aquifer of concern:

N/A

Depth from the ground surface to the lowest point of waste disposal/storage:

N/A

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

N/A

Mean annual lake or seasonal evaporation (list months for seasonal):

N/A

Attachment 2A Aquifer of Concern

There are no confining layers present within the Bigby-Cannon Limestone, Hermitage Formation, and Carters Limestone. The Bigby-Cannon Limestone contains facies ranging from a microcrystalline limestone facies to medium- and coarse-grained limestone facies (Ref. 5). The Bigby-Cannon has sinkhole development and deep weathering along vertical fractures (Ref. 6). Numerous springs are present in the area (Ref. 2).

The underlying Hermitage Formation consists of a coquina (shell hash) facies with shale partings, a laminated argillaceous limestone facies, and a limestone with shale partings (Ref. 5). The Carters Limestone underlying the Hermitage consists of an upper and lower limestone member of cryptocrystalline to fine-grained limestone with shale partings separated by a thin bentonite clay (Ref. 5). The Carters weathers to a brown plastic clay with some sinkholes (Ref. 6).

N/A
Permeability of Unsaturated Zone
Soil type in unsaturated zone:
N/A
Permeability associated with soil type:
N/A
Physical State
Physical state of substances at time of disposal (or at present time for generated gases):
N/A
* * *
3 CONTAINMENT
Containment
Method(s) of waste or leachate containment evaluated:
N/A
Method with highest score:
N/A
4 WASTE CHARACTERISTICS
Toxicity and Persistence
Compound(s) evaluated:

Net precipitation (subtract the above figures):

2, 8).

1,1-dichloroethene and 1,1-dichloroethane detected in pits A and B and monitoring well #8 on site and not detected in background well (Johnson) by State Superfund sampling (Ref. 1,

Compound with highest score:

1,1-dichloroethene has a toxicity rating of 3 (Ref. 4) and a persistence rating of 2 (Ref. 9).

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

800 drums

Basis of estimating and/or computing waste quantity:

Genesco admission of the dumping of approximately 800 55-gallon barrels of waste material containing organic solvents, organic fillers, and water based adhesives at the site by their subsidiary General Adhesives (Ref. 10).

5 TARGETS

Ground Water Use

Use(s) and aquifer(s) of concern within a 3-mile radius of the facility:

Drinking water with no municipal water presently available (Ref. 11, 12). Genesco paid for lines to be run from Brentwood for the area within a one-mile radius of the site that had no municipal water source.

Distance to Nearest Well

Location of nearest well drawing from <u>aquifer of concern</u> or occupied building not served by a public water supply:

Hackett Spring is used as a drinking water supply by the Hacketts (Ref. 13). Hackett house is on east side of Wilson Pike approximately 1000 ft. north of Split Log Road (Ref. 2, 14, 15).

Distance to above well or building:

Hackett Spring is contaminated (Ref. 1), distance would be considered as zero. Actual distance from the pits is approximately 1500 ft. (Ref. 14, 15).

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from <u>aquifer(s)</u> of concern within a 3-mile radius and populations served by each:

108 houses not on public water for a population of 410 (Ref. 16).

Kennon Site TND 981473515

Computation of land area irrigated by supply well(s) drawing from <u>aquifer(s)</u> of <u>concern</u> within a 3-mile radius, and conversion to population (1.5 people per acre):

None identified (Ref. 17)

Total population served by ground water within a 3-mile radius:

410

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

None identified

Rationale for attributing the contaminants to the facility:

N/A

- + +

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

60 ft. in 1800 ft. for 3.3% slope (Ref. 14, 15).

Name/description of nearest downslope surface water:

Unnamed creek entering the Little Harpeth River north of the junction of Wilson Pike and Split Log Road (Ref. 14, 15).

Average slope of terrain between facility and above-cited surface water body in percent:

80 ft. in 1800 ft. for 4% slope (Ref. 14, 15).

Is the facility located either totally or partially in surface water?

No (Ref. 14, 15)

Is the facility completely surrounded by areas of higher elevation?

No (Ref. 14, 15)

I-Year 24-Hour Rainfall in Inches

3 inches (Ref. 9)

Distance to Nearest Downslope Surface Water

0.4 miles from the site to where surface drainage enters unnamed tributary of Little Harpeth River (Ref. 14, 15).

Physical State of Waste

Liquids dumped at site by admission of company (Ref. 10).

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Landfill not adequately covered and no diversion system present--drums and liquid emptied into pits and covered with no documentation indicating adequate cap (Ref. 10).

Method with highest score:

Landfill not covered, no diversion system present.

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

1,1-dichloroethene and 1,1-dichloroethane detected in pits A and B and monitoring #8 on site by State Superfund sampling (Ref. 1, 2).

Compound with highest score:

1,1-dichloroethene has a toxicity rating of 3 (Ref. 4) and a persistence rating of 2 (Ref. 9).

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

800 drums

Basis of estimating and/or computing waste quantity:

Genesco admission of the dumping of approximately 800 55-gallon barrels of waste material containing organic solvents, organic fillers, and water-based adhesives at the site by their subsidiary General Adhesives (Ref. 10).

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

Recreational use of the Little Harpeth River between Split Log Road and Concord Road (Ref. 17).

Is there tidal influence?

No (Ref. 14, 15)

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

None identified (Ref. 14, 15)

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

None identified (Ref. 14, 15)

Distance to critical habitat of an endangered species or national wildlife refuge, if I mile or less:

None identified (Ref. 18)

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

None identified (Ref. 19)

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

None identified (Ref. 17)

Kennon Site TND 981473515

rotal population served:
N/A
Name/description of nearest of above water bodies:
N/A
Distance to above-cited intakes, measured in stream miles:

N/A

AIR ROUTE NOT RATED

I OBSERVED RELEASE	
Contaminants detected:	
Date and Location of detection of contaminants:	
Methods used to detect the contaminants:	
Rationale for attributing the contaminants to the site:	
* * *	
* * *	
2 WASTE CHARACTERISTICS	
2 WASTE CHARACTERISTICS	
2 WASTE CHARACTERISTICS Reactivity and Incompatibility	
2 WASTE CHARACTERISTICS Reactivity and Incompatibility Most reactive compound:	
2 WASTE CHARACTERISTICS Reactivity and Incompatibility	
2 WASTE CHARACTERISTICS Reactivity and Incompatibility Most reactive compound:	
2 WASTE CHARACTERISTICS Reactivity and Incompatibility Most reactive compound:	

Hazardous Waste Quantity
Total quantity of hazardous waste:
Basis of estimating and/or computing waste quantity:
* * *
3 TARGETS
Population Within 4-Mile Radius
Circle radius used, give population, and indicate how determined:
0 to 4 mi 0 to 1 mi 0 to 1/2 mi 0 to 1/4 mi
Distance to a Sensitive Environment
Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:
Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:
Distance to critical habitat of an endangered species, if 1 mile or less:
Land Use
Distance to commercial/industrial area, if 1 mile or less:

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

K	ennor	i Site
IND	98147	3515

Distance 1	to residential	area, if 2	miles or	less:
------------	----------------	------------	----------	-------

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

FIRE AND EXPLOSION NOT RATED

I	CONTAINMENT			
Haza	urdous substances present:			
Туре	of containment, if applicable:			
	* * *			
2	WASTE CHARACTERISTICS			
<u>Dire</u>	ct Evidence			
Туре	of instrument and measurements:			
Ignit	<u>ability</u>			
Com	Compound used:			
_				
Reactivity				
Most	reactive compound:			
Incor	npatibility			
Most incompatible pair of compounds:				

Total quantity of hazardous substances at the facility:
Basis of estimating and/or computing waste quantity:
* * *
3 TARGETS
Distance to Nearest Population
Distance to Nearest Building
Distance to Sensitive Environment
Distance to wetlands:
Distance to critical habitat:
Land Use
Distance to commercial/industrial area, if 1 mile or less:
Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:
Distance to residential area, if 2 miles or less:

Kennon Site TND 981473515

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

Population Within 2-Mile Radius

Buildings Within 2-Mile Radius

16

DIRECT CONTACT NOT RATED

1	OBSERVED INCIDENT
Date	, location, and pertinent details of incident:
	* * *
2	ACCESSIBILITY
Desc	ribe type of barrier(s):
	# # #
3	CONTAINMENT
Туре	of containment, if applicable:
	# # #
4	WASTE CHARACTERISTICS
Toxic	zity
Com	pounds evaluated:
Com	pound with highest score:

5 TARGETS

K	en	no	n	Si	t	e
TND	98	14	73	35	1	5

Population within one-mile radius

Distance to critical habitat (of endangered species)

TAM/ah Disc--Higgs/GrndW4 SF-12

REFERENCES

KENNON SITE (GENESCO)

TND 981473515

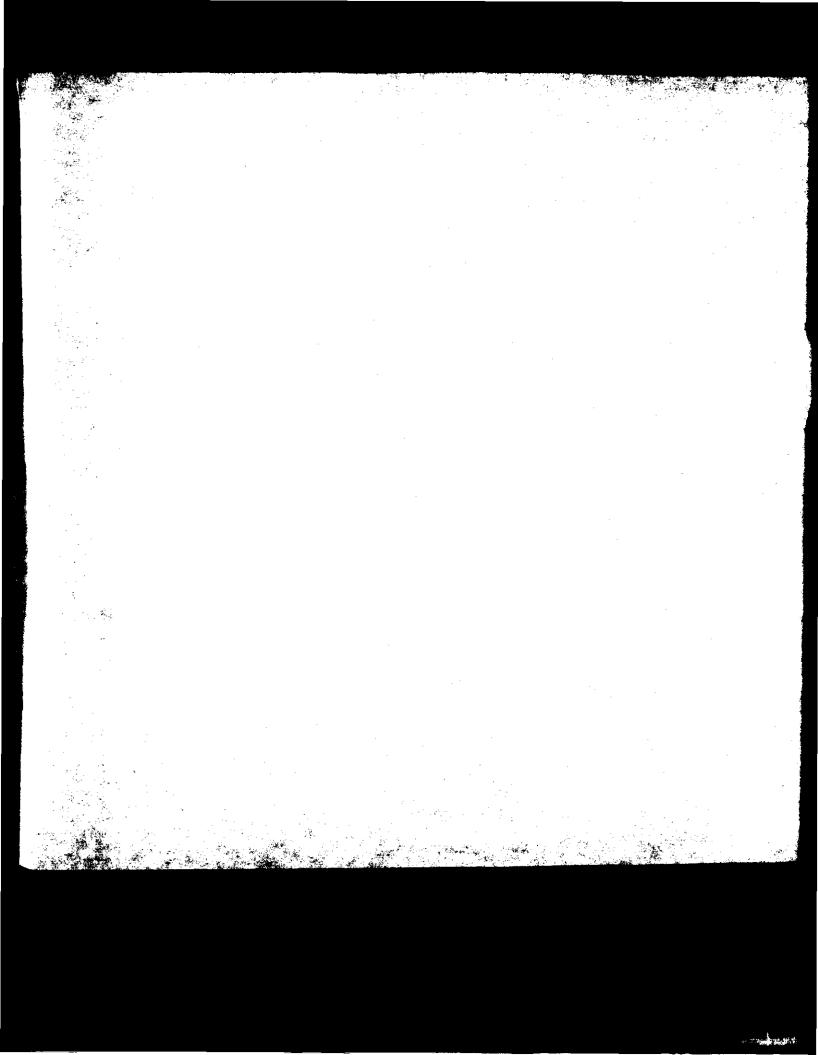
- Kennon Site Sampling and Event Chronology; State Superfund Sampling Results for Kennon Site (Genesco) with Sample Points for Wells/Springs. See Geraghty and Miller, 1986 for Sampling Locations.
- 2. Geraghty and Miller (1986): Plan for Investigation of the Kennon Site, Brentwood,
 Tennessee; prepared for Genesco, Inc., Dec. 1986.
- 3. G. Hawley, revised (1981): Condensed Chemical Dictionary, Tenth Edition; Van Nostrand Reinhold.
- 4. N.I. Sax (1984): Dangerous Properties of Industrial Materials, 6th Edition; Van Nostrand Reinhold.
- 5. (1963) Franklin Quadrangle Geologic Map GM 63 NE.
- 6. Beaver Engineering (1977): Bedrock Geology of the Nashville and Middle Tennessee

 Area.
- 7. 2/19/87 Letter from Roger W. Lee, U.S. Geological Survey to Todd Hughes, TN Dept. of Health and Environment (Superfund) Data on Observation Wells.

- 8. 3/19/86 and 3/24/86 Analytical Reports from Wayne McCoy, Edge to Ronnie Bowers,
 DSF; Re: Kennon Property Analytical Results. Background Soil Sample (See Pond
 Sediment and Hackett Ditch).
- 9. (1984) Uncontrolled Hazardous Waste Site Ranking System, A Users Manual (HW-10), U.S. E.P.A.
- 5/21/85 Letter from Ralph Mosely, Genesco to Tom Tiesler, DSWM; RE: Chemical
 Waste Site Once Used by a Division of Genesco.
- 11. 2/19/86 Letter from Frank W. Clifton Jr. Brentwood City Manager to Don Shackleford, TN Div. Superfund; Re: Cost Estimates for Water Lines.
- 12. 7/28/86 Letter from Ralph Mosely, Genesco to Frank W. Clifton, Jr., Brentwood City Manager; Re: Service Connections.
- 13. 3/16.87 Conversation of Thomas A. Moss, DSF with Ronnie L. Bowers, DSF; Re:
 Kennon Site (Genesco) Sample Results, Water Use.
- (1981) Franklin Quadrangle Topographic Map 63 NE.
- 15. (1957) Nolensville Quadrangle Topographic Map 70NW.
- 16. 4/24/87 TDH&E Memo from Thomas A. Moss, DSF to Kennon Site (Genesco) File;Re: Ground Water Use Survey/House County for 3 Mile Radius.

- 17. 3/10/87 Telephone Conversation of Thomas A. Moss, DSF with Robin Bowie, Williamson County Soil Conservation Service; Re: Surface and Groundwater Use for Irrigation in the Area of the Genesco Site.
- 18. 12/19/85 Letter from Robert M. Thatcher, TWRA to Gordon S. Caruthers, DSWM with attachments: Critical Wildlife Habitat of Tennessee.
- 19. (1978) Water Quality Management Plan for the Lower Cumberland River Basin, TN Division of Water Quality Control.
- 20. Commissioners Order: Genesco Inc./Emmett & Rose Kennon. Order No. 863013.

TAM/dje SF #5



OVERSIZED DOCUMENT

Reference 3

LATITUDE AND LONGITUDE CALCULATION WORKSHEET #1 LI USING CUSTOM RULER OR COORDINATOR TM

SITE NAME: HERMON 5	de	CERCLIS #: 7ND981473515
AKA: Gene	<u>500</u>	SSID:
ADDRESS: SOLIT LOG ROX	Huison Pika	
CITY: Brentward	STATE: TN	21P CODE: 37627
SITE REFERENCE POINT:		
usgs quad map name: Fo	nklin, TN TOWNSHI	P: N/S RANGE: E/W
SCALE: 1:24,000 MAP D	ATE: SECTION:	1/41/41/4
MAP DATUM: 1927 1983	(CIRCLE ONE) MERIDIAN	
COORDINATES FROM LOWER RI	GHT (SOUTHEAST) CORNER	of 7.5' MAP (attach photocopy):
LONGITUDE: 86. 45.	OO - LATITUDE:	35 · 52 · 30 ·
COORDINATES FROM LOWER R	IGHT (SOUTHEAST) CORNER	OF 2.5' GRID CELL:
LONGITUDE: 86. 47	30 - LATITUDE: 3	35 · <u>57 · 30 ·</u>
CALCULATIONS: LATITUDE	(7.5' QUADRANGLE MAP)	
	GRID. POSITION EDGE OF	F GRID. ALIGN THE TOP OF THE RULER OVER SITE REFERENCE POINT
B) READ TICS ON RULER AT	1- OR 0.5-SECOND INTERV	ALS (INTERPOLATE).
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232 GENESCO PARK NASHVILLE, TN 37217

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MOSELY AND ASSOCIATES, INC.

AFTER-ACTION REPORT INCLUDING AIR MONITORING PROGRAM, WATER MONITORING PROGRAM, AND SITE SECURITY PROGRAM

Kennon Site - Brentwood, Tennessee

January 1993 Revised December 1993

AFTER-ACTION REPORT INCLUDING AIR MONITORING PROGRAM, WATER MONITORING PROGRAM, AND SITE SECURITY PROGRAM Kennon Site - Brentwood, Tennessee January 1993 Revised December 1993

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INTRODUCTION

INTRODUCTION Kennon Site - Brentwood, Tennessee

There are three separate documents comprising this After-Action Report:

- The Mosely & Associates, Inc. After-Action Report is a notebook which contains the Introduction and Site History, the Air Monitoring Program, Water Monitoring Program, and Site Security Program.
- The Geraghty & Miller, Inc. Source Control/Remediation After-Action Report for the Kennon Site
 is a separate notebook which contains a brief history of the site activity and reviews the source control
 remediation activities.
- The Geraghty & Miller, Inc. Long-Term Soils Management for the Kennon Site Report is a separate notebook which contains the soils management program for the site.

BACKGROUND HISTORY OF SITE

BACKGROUND HISTORY OF SITE Kennon Site - Brentwood, Tennessee

The ten acre site undergoing remediation is located in Brentwood, Tennessee on a 150-acre tract of farmland owned by Emmett and Rose Kennon (See Figure 1). Phosphate was mined on the farmland property between 1972 and 1974, from which one pit was left unreclaimed. In 1978, this mine pit and four additional trenches were used for the disposal of industrial wastes, consisting of organic solvents, adhesives, and organic fillers from General Adhesives, which at that time was a division of Genesco Inc.

Genesco corporate officials learned of the disposal activities in 1985, at which time the Tennessee Department of Environment and Conservation (TDEC), formerly known as the Tennessee Department of Health and Environment (TDHE), was notified and a series of investigations and remedial activities were begun under the supervision and direction of TDEC.

During the initial stage, a silt fence was constructed to prevent contaminated sediment from leaving the property and an alternative water supply was provided to residents in the area. Soil sampling and geophysical surveys were conducted in the disposal areas and monitor wells were constructed on-site by consultant personnel. Domestic wells and springs were sampled by the TDHE, and the US Geological Survey (USGS) conducted a study of the regional ground-water flow system. In 1986, the City of Brentwood extended the city water lines into this area of Williamson County to provide city water to residents in the surrounding area, with Genesco participating in the funding thereof.

Geraghty and Miller, Inc. (G&M) was retained by Genesco to collect and analyze all of the existing data and to prepare a plan of investigation of the site. During 1987, that plan was implemented.

From the data obtained during the site investigation in 1987, it was concluded that the hydrogeologic system at the site is composed of three basic units. The uppermost unit (the shallow aquifer) includes a granular saprolite zone at the base of the weathering residuum and the weathered upper few feet of the bedrock. This is underlain by the Hermitage Aquitard, which is a confining zone. The Carter's Formation, which is the third unit, underlies both the hydrogeologic systems noted above and is a massive limestone formation.

The ground water flow in the shallow aquifer is towards the southwest and is largely controlled by topography. Ground water contamination was found to be restricted to the shallow aquifer and confined to a relatively small area on the Kennon property immediately adjacent to the disposal area. Based upon the data collected, it was determined that it was unlikely that any contaminants had migrated off of the Kennon property.

Work plans, investigation reports and remedial design documents were prepared during 1986 to 1990 to address the on site contaminants, and were implemented in 1989 through 1991. The site is being remediated in accordance with TDEC order, No. 86-3013, issued March 5, 1986. A Hazard Evaluation and Remedial Alternatives (HE&RA) study was conducted to identify the media of concern (ground water, adhesive waste, contaminated soils) and the optimum treatment and disposal alternatives.

The selected ground water remedial method was Remedial Alternative 1 of the HE&RA, which was comprised of a subsurface drain (See Figure 2). The subsurface collection drain was designed and installed in November 1989 to intercept the flow of ground water (See Figure 3). Intercepted ground water is removed from the site and treated through the City of Brentwood sewer system at a treatment facility operated by the Metropolitan Government of Nashville and Davidson County.

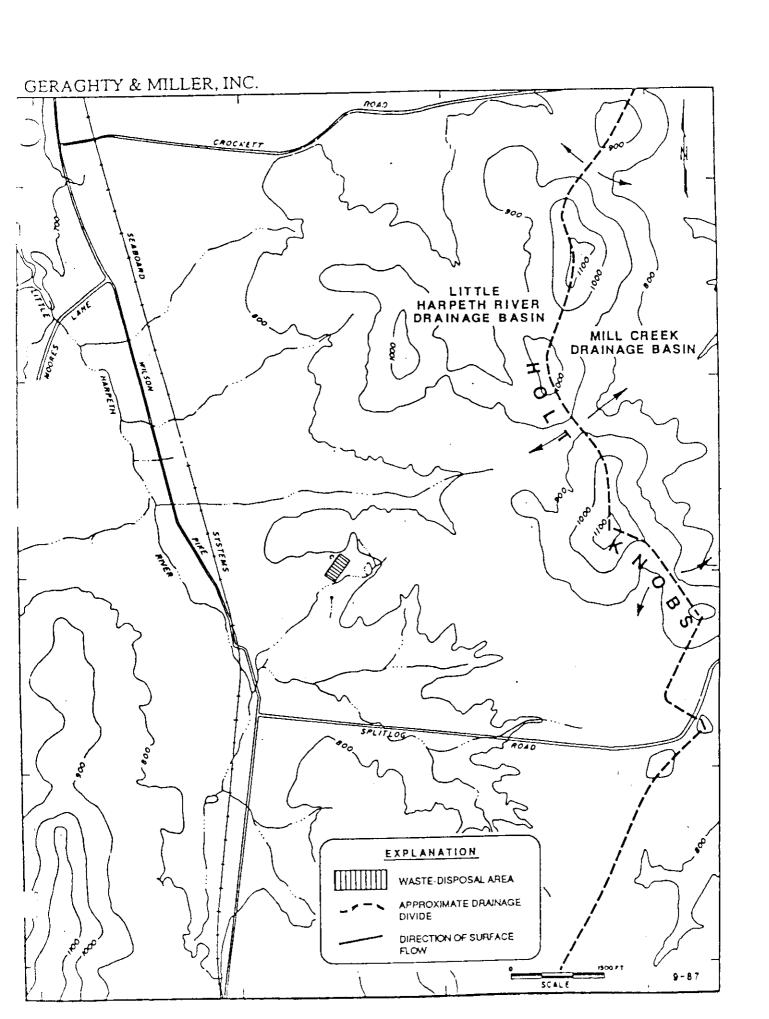
The selected source control remediation method was outlined in the G&M Source Control Plan of May 1989. The TDEC approved the Source Control Plan in April 1990 and it was implemented during the period of July 1990 through June 1991. Large mechanical screens were used from June 1990 to September 1991 to separate semi-solid and solid adhesive wastes from the soils. Excavated adhesive wastes were removed from the site and inclnerated. The remaining soils were processed through the screens several times prior to the bioremediation phase of the project.

A treatability study was conducted by G&M at the site in 1990. The study determined that an adapted indigenous aerobic bacteria population was present in the soils which could be used to convert the residual contamination present in the soils to carbon dioxide.

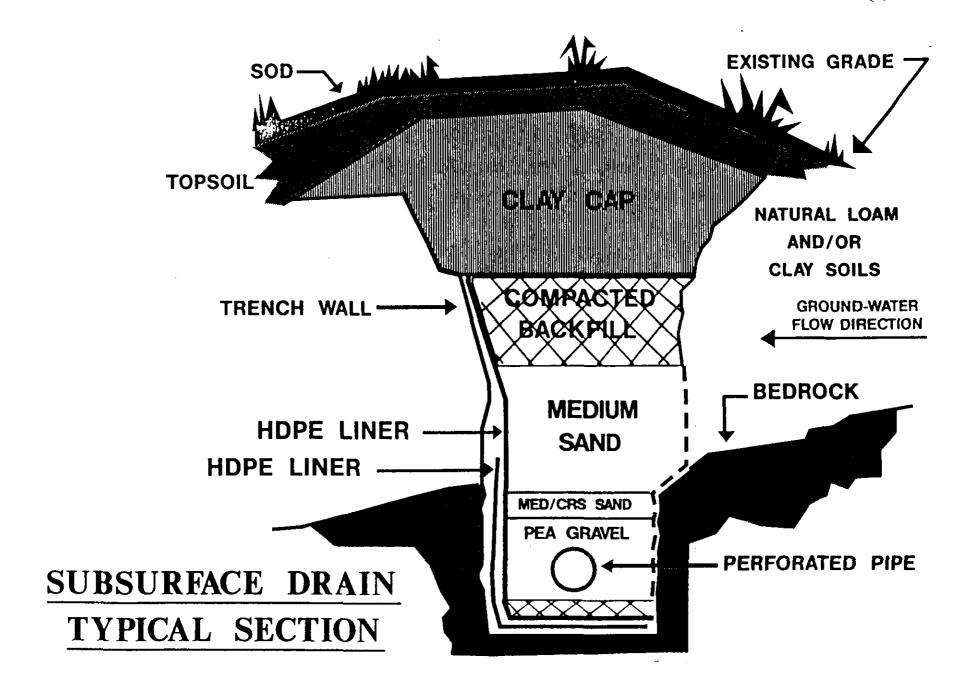
Baseline soil sampling was conducted in 1990 and 1991, and the site was terraced into a series of surface water holding cells in order to promote the bioremediation effort (See Figures 5 and 6).

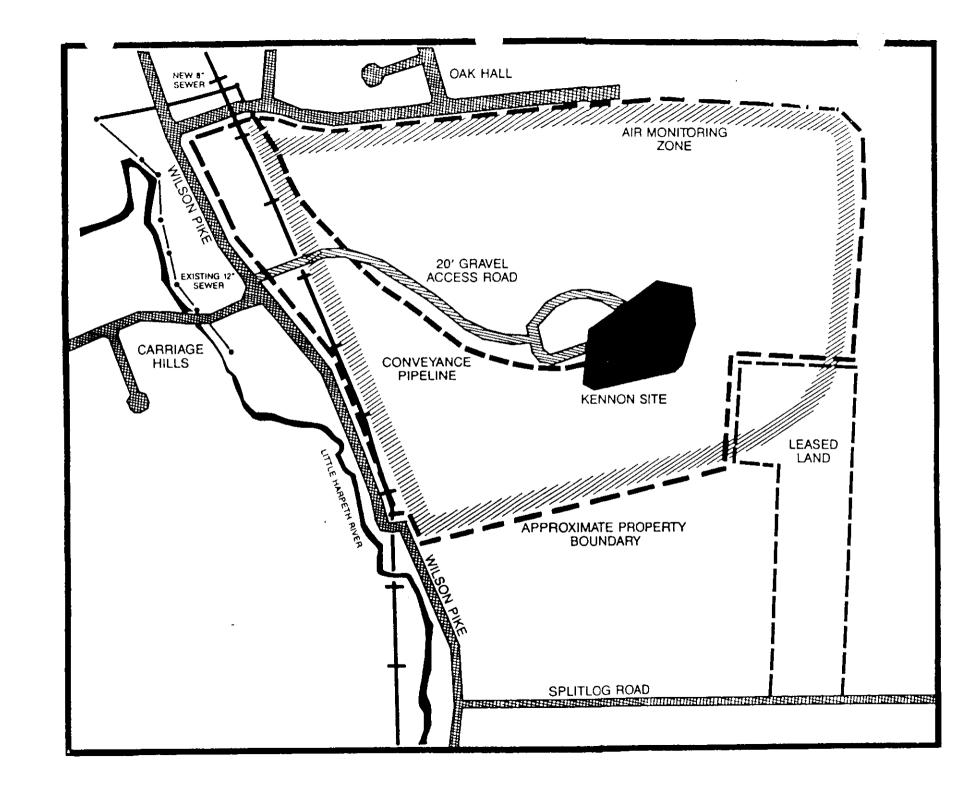
Soil and ground water sampling takes place on a scheduled basis to ensure that bioremediation continues in an effective manner.

Bioremediation is anticipated to continue until approximately the year 2002, but closure of the site will not be completed until a comprehensive sampling analysis has been conducted to ensure that the soil and ground water cleanliness meets the applicable regulations.

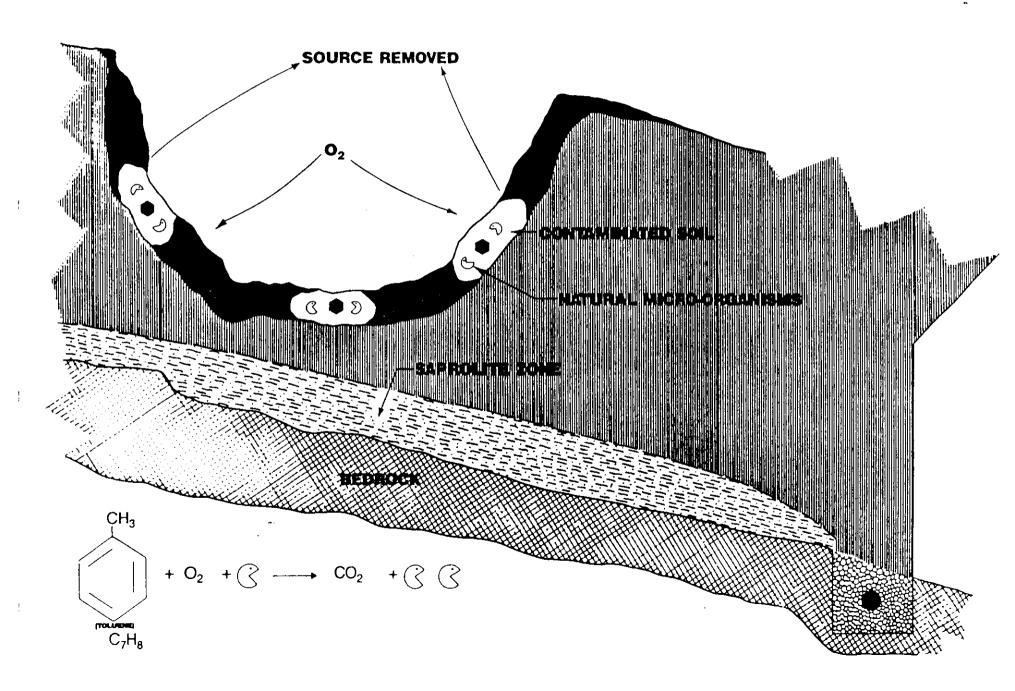


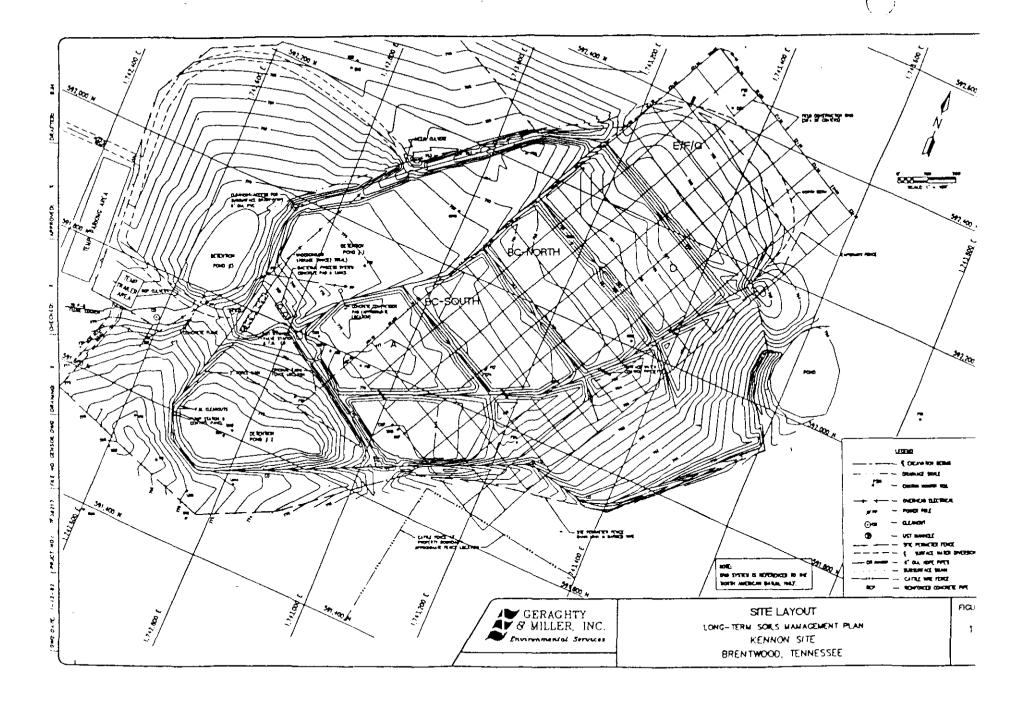
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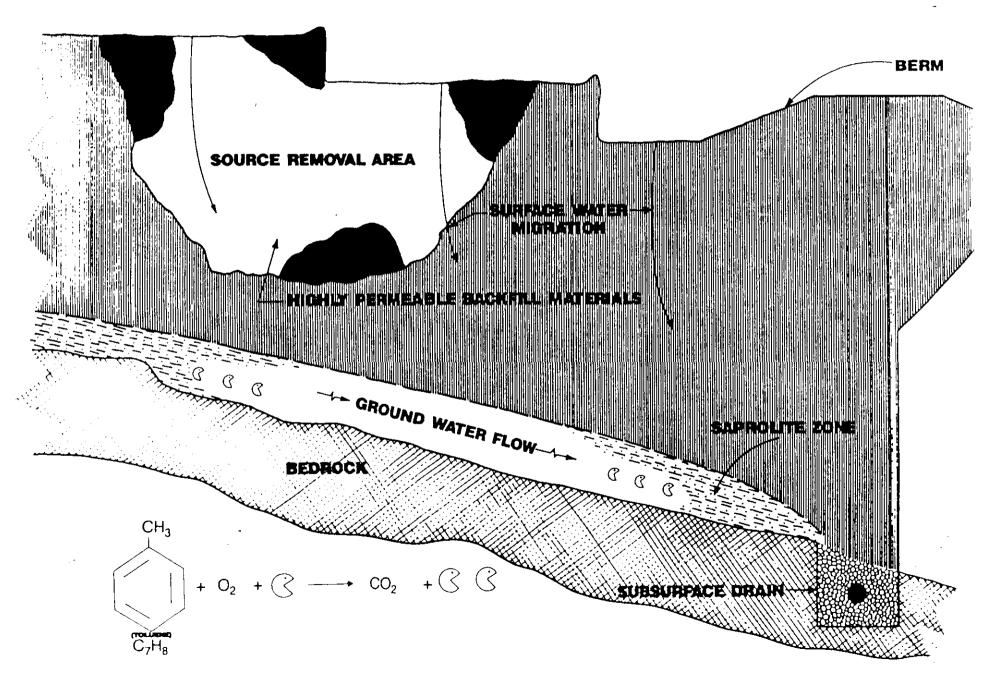


REMOVAL OF SOURCE MATERIAL





TERRACING PROMOTES PONDING AND INCREASES FLOW THROUGH THE SOILS



ANTICIPATED O&M COSTS AT SITE

KENNON SITE - BRENTWOOD, TENNESSEE

Future Cost Projections FYE 95 Through FYE 2001 - As of February 9, 1993

I. LONG-TERM COSTS FROM FEBRUARY 1994 - FYE 2001				
Geraghty & Miller, Inc. Annual Costs for Bioremediation, Soil Sampling and Laboratory Analysis © \$8,000/yr x 7 yrs.		\$ 56,000		
Bi-Annual Bioremediation/Soil Treatment (\$5,000/application - Incl. contractor x 4 applications)		20,000		
Soil Re-Working - Est. in FYE 97 (incl. contractor)		30,000		
Mosely & Associates, Inc. Air & Water Sampling/Regulatory Liaison @ \$20,000/yr x 7 yrs		140,000		
Operations & Maintenance (incl contractor @ \$8,000 every other year x 3 yrs)		24,000		
TDEC Cost Allocation (\$60,000 - January 95 Payment)		60,000		
Other Miscellaneous Costs Sewer, Utilities, Etc. © \$18,600/yr x 7 yrs		130,200		
II. SITE CLOSURE COSTS - APPROX. FYE 2001				
Decontamination of Subsurface Systems (M&A and G&M)		50,000		
Certifications for Meeting TDEC ARAR's		50,000		
Final Closure Report (G&M)		20,000		
Regulatory Liaison (M&A)		30,000		
TDEC Cost Allocation (NOTE: Majority of TDEC cost will have already been previously paid)	i .	30,000		
FUTURE TOTAL LONG-TERM COSTS	\$	640,200		

ANNUAL REPORT INFORMATION

ANNUAL REPORT INFORMATION Kennon Site - Brentwood, Tennessee

An annual report will be prepared each year summarizing the yearly events including the sampling and soils management activities. Included will be an estimate of the volume of ground water treated and the annual expenditures. Two copies of this report will be submitted to the Division of Superfund (DSF) by March 1st of each year.

The first such report is due March 1, 1994, covering the activities for the calendar year 1993.

LONG-TERM TREATMENT CRITERIA

LONG-TERM TREATMENT CRITERIA Kennon Site - Brentwood, Tennessee

A necessary omission from the Long-Term Soils Management Program is the reporting of risk-based soil and groundwater Applicable or Relevant and Appropriate Requirements (ARAR's), which are sometimes set by the appropriate regulatory authority as a "level of cleanliness" to which the on-site groundwater and soils are compared when de-listing of the site occurs.

Since the United States Environmental Protection Agency (EPA) has not yet determined the ARARs for sites undergoing remediation, it was felt by TDEC. Genesco and the consultants that the specification of an ARARs number for the soils and groundwater would be premature and somewhat arbitrary. The U.S. EPA continues to develop the ARARs Program and is expected to publish ARARs guidelines well before the bioremediation activities at the site are completed. After each five year period, the bioremediation system's effectiveness in achieving treatment goals through the bioremediation program will be evaluated by comparison with ARAR's published by EPA or TDEC.

AIR MONITORING PROGRAM

AIR MONITORING PROGRAM Kennon Site - Brentwood, Tennessee

Four tasks concerning air monitoring were accomplished on the Kennon site to obtain data concerning the possibility of airborne contaminants from the removal/remediation operations which were being conducted in 1990 and 1991. The air monitoring was accomplished in conjunction with the utilization of a comprehensive weather station located at the site, which measured the barometric pressure, outside temperature, relative humidity, wind direction, and wind speed. This information was accumulated on a continuing basis, during the periods when all source removal/remediation operations were actually conducted.

Perimeter Monitoring

Ten air monitoring stations, located around the property boundary of the Kennon farm, were equipped with 3M passive monitors to detect airborne organic vapors. The monitors were housed in specially-designed air monitoring stations, constructed of untreated redwood and galvanized screen mesh, to protect the monitors from the elements and wildlife. Photographs of the sampling stations, and a location map, are included as attachments to this document.

Monitors were changed out on a weekly basis during the active source removal phase, and on a bi-weekly basis during inactive source removal activities. The monitors were immediately labeled, sealed, and shipped to the Clayton Environmental Laboratories In Novi, Michigan, for a gas chromatograph hydrocarbon scan to determine the total level of hydrocarbons present. Gas chromatography mass spectraphotography analyzation was available in the event that the levels of the total hydrocarbons, on a cumulative, time-weighted average basis, exceeded a level indicative of the presence of hydrocarbons in excess of background levels.

Also included within this document are the results of each of the individual laboratory tests. The total hydrocarbons found on the sample itself, as well as the time-weighted average of milligrams per cubic meter (mg/M³) are reported. At no time were background levels exceeded, showing that no harmful levels of organic vapors crossed the boundaries of the farm. The trace levels that were occasionally reported were attributed to large deposits of cow manure found in the immediate vicinity of the respective monitoring station.

Work Area Detection Alarms

Three Thermoelectron Organic Vapor Monitors (OVMs), which are sophisticated electronic monitoring instruments, were placed in special weather-tight enclosures, were equipped with radio alarm systems and were used daily during the construction process when source material was bought to the surface of the ground. They were placed upwind and downwind from the work area to pick up levels of organic vapors

which might be drifting towards the property line. Should the readings be over a pre-set alarm level (four parts per million [ppm]) the alarm would trip, a radio signal would be sent to the Mosely & Associates site trailer weather station, and an investigation would immediately take place to determine the cause of the indicated high level. In most cases, the alarms came from exhaust fumes from construction or farm equipment. In those isolated cases where the alarm limit was exceeded due to on-site removal activity which did not exceed 10 ppm, immediate steps were taken on-site to contain or remove the generating source.

Daily Air Samples

During the excavation phase of the project, air samples were taken in the source removal area to insure that the source removal activities generated no airborne contaminants in the construction area at the site which may be too small to be noted by other instruments, but which might accumulate over the work day to a level which may be of concern to site workers.

SKC Air Monitoring pumps installed with charcoal tube collection media were mounted approximately five feet above ground in the North, East, South, and West quadrants surrounding the construction area at the site. A fifth pump and charcoal tube was set out in the middle of the construction area.

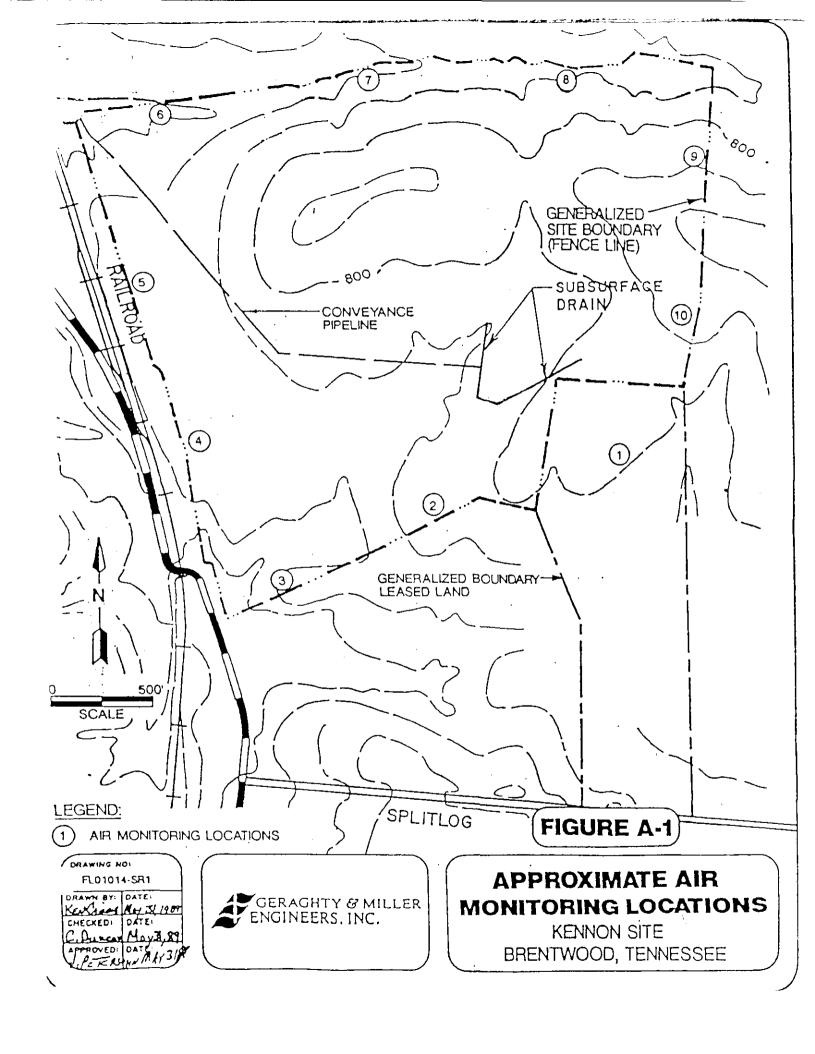
Each day while source removal activities were underway at the site, five air samples, plus laboratory and/or field blanks were taken in accordance with OSHA, EPA, NIOSH, and AIHA methodology and were sent to Clayton Environmental Laboratories in Novi, Michigan for analysis. This laboratory is accredited by the American Industrial Hygiene Association (AIHA) for this type of analyses.

The attached data shows the results both as the total milligrams of hydrocarbons found in the sample (mg) and a Time-Weighted Average (TWA) in mg/M³. In all cases, no time-weighted average organic vapors were present in the construction area in an amount sufficient to cause concern regarding worker or nearby resident health and safety.

Direct Reading Instrumentation

Organic Vapor Monitors and/or Organic Vapor Analyzers (sophisticated, state-of-the-art Industrial hygiene instruments), were used continually while excavation activities were taking place. These analyzers enabled Mosely & Associates, Inc. and contractor health and safety personnel to monitor levels of airborne vapors for worker and resident safety during excavation activities. This permitted sources of organic vapors to be covered, contained or treated to prevent the large scale release of those vapors.

These instruments were also used to assist in the qualification and identification of source materials for the presence of organic vapors, and to assist, along with soil and water samples, in the qualification of backfill material.



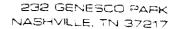
WATER MONITORING PROGRAM

WATER MONITORING PROGRAM Kennon Site - Brentwood, Tennessee

Three separate documents previously submitted to TDEC govern the water monitoring procedures at the Kennon site, their requirements, and the requisite quality assurance procedures, and are reported as a part of the Groundwater Monitoring Plan, January 1993. These documents are described below:

- 1. <u>City of Brentwood Sewer Permit</u>: This permit, Issued Initially on June 1, 1990, renewed on June 1, 1992, and currently expiring on May 31, 1994, requires compliance with Metro Ordinance No. 080-343, which governs wastewater discharge into the sewer system for the Metropolitan Government of Nashville and Davidson County, and into the City of Brentwood sewer system. A copy of the Permit and related requirements is included as Appendix 2 in this section.
- 2. <u>Groundwater Monitoring Plan Geraghty & Miller, Inc., November 1988</u>: This document covers the initial groundwater monitoring well installation and monitoring of those wells throughout the life of the project. It was previously submitted to the TDEC and approved by them prior to the beginning of the Groundwater Monitoring Program.
- Water Sampling Plan, Mosely & Associates, Inc., May 1990: This plan combined the
 monitoring requirements from the above two documents, and included increased monitoring
 procedures for the Source Removal Phase of the project in 1990 and 1991. It was previously
 submitted and approved by TDEC.

Groundwater Monitoring Plan, Mosely & Associates, Inc., January 1993: This Water Monitoring Plan incorporates all of the quality assurance, sampling, and analytical requirements of the above three documents by reference into this Water Monitoring Plan, and contains the combined water sampling schedule until the site is de-listed by the Tennessee Department of Environment and Conservation. This plan was initially submitted to TDEC in January 1993 and was updated in December 1993 and is included in its entirety in this section of this report.



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MOSELY AND ASSOCIATES, INC.

GROUNDWATER MONITORING PLAN KENNON SITE BRENTWOOD, TENNESSEE **JANUARY 1993**

Revised December 1993

GROUNDWATER MONITORING PLAN KENNON SITE BRENTWOOD, TENNESSEE JANUARY 1993 REVISED DECEMBER 1993

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GROUNDWATER MONITORING PLAN KENNON SITE JANUARY 1993 Revised December 1993

1.0 PROJECT DESCRIPTION

Mosely & Associates, Inc. has been retained by Genesco Inc. to provide environmental safety management services in connection with the Kennon site, located near Wilson Pike In Brentwood, Tennessee. One of the specific services of our environmental activities is to collect and arrange to have analyzed samples of groundwater and/or wastewater that is, or may be, conveyed to the City of Brentwood sewer system.

This document reviews the sampling and quality assurance procedures to be taken in accomplishing this task.

Wastewater sampling and analysis is being accomplished for three different phases of the Kennon site project:

1. MONITOR WELL SAMPLING: This activity is provided relative to the "GroundWater Monitoring Plan for the Kennon Site, Brentwood, Tennessee, November, 1988", which was prepared by Geraghty & Miller, Inc., Oak Ridge, Tennessee. This plan was approved by TDEC and sets forth the sampling and quality assurance procedures for monitoring the groundwater quality of selected previously-installed monitoring wells inside and outside the bermed area on the Kennon property.

Under this program, sampling is performed on selected monitoring wells on a quarterly basis and the sample results are submitted to the TDEC.

CITY OF BRENTWOOD SEWER SAMPLING: Specific wastewater sampling for sewer discharge is required by the City of Brentwood Department of Water and Sewerage Services Permit No. 89-001 for the Discharge of Industrial Wastes, issued to Genesco Inc. on June 1, 1989.

Discharge to the sewer is in the form of groundwater collected through the subsurface drain system at the Kennon site, and potentially may contain trace levels of volatile organic compounds (VOC's). A baseline sample and analysis for the priority pollutants - volatiles, and the full "Metro" list is collected and analyzed annually. The priority pollutants list for volatiles is collected and analyzed on a quarterly basis. Beginning In 1994, an analysis for flow, BOD₅, SS, oil and grease, pH, ammonia, iron, zinc, cadmium, and magnesium will also be accomplished on a semi-annual basis, to comply with requirements Imposed upon the city of Brentwood by Metro. Results are sent to both the City of Brentwood and to TDEC.

3. SOURCE REMOVAL PHASE - GROUNDWATER DISCHARGE MONITORING PROGRAM:
Beginning in the late Spring of 1990, Genesco Inc. entered Into the Source Removal/Soil Remediation Phase of the Kennon project. In this phase, groundwater and decontamination rinsate that was collected on site was processed through a solvent-water separator and/or process control unit for use in the soil remediation/bloremediation activities. Excess groundwater was discharged to the City of Brentwood Sewer System. Increased sampling frequency and quality assurance steps for groundwater monitoring were required during that particular phase of the Kennon Site remediation project. The results were sent to both the City of Brentwood and to TDEC.

1.1 BACKGROUND INFORMATION

Groundwater monitoring through both the Monitor Well Sampling and Sewer Discharge Programs has been accomplished for several years on this project. Sample results from both programs indicate that contaminants are not present in the monitor wells or sewer discharge, except for trace levels of a few volatile organic compounds. All trace levels of volatile organic compounds found were considerably lower than limitations set forth in the City of Brentwood or Metropolitan Government of Nashville and Davidson County Sewer Use Ordinances.

2.0 SAMPLING and QUALITY ASSURANCE PROCEDURES

This section presents the scope and the methodology of sampling activities to accomplish this project. The primary quality assurance objectives for the sampling procedures are: (a) that the samples obtained are representative of the total wastewater stream into the sewer; (b) that a sufficient amount of the sample is taken so that the appropriate analyses may be accomplished by the analytical laboratory; (c) that the proper handling and preservation procedures are followed to maintain the integrity of the sample; and (d) that the sampling procedures are well documented.

References for sampling procedures that will be used include:

- (1) NPDES Compliance Sampling Manual, U.S. Environmental Protection Agency, Office of Water Enforcement, October 1979.
- (2) Sampling Procedures for Hazardous Waste Streams, deVera, et al.
- (3) <u>Safety Manual for Hazardous Waste Site Investigations</u>, U.S. Environmental Protection Agency.
- (4) NIOSH Manual of Analytical Methods, Third Edition, National Institute of Occupational Safety and Health, U.S. Department of Health, Education and Welfare, February, 1984.
- (5) <u>Methods for Chemical Analysis of Municipal and Industrial Wastewater</u>, U.S. Environmental Protection Agency, EPA-600/482-057.
- (6) Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, National Institute for Occupational Safety and Health, NIOSH-85-115.

2.1 SAMPLING SAFETY

The Health and Safety Plan, prepared for the Kennon site by Geraghty & Miller, Inc. and contained in the Groundwater Monitoring Plan of November 1988, is used as a guideline for safety procedures to be implemented and followed during sample collection, and includes the following considerations: (a) respiratory protection where required for collecting samples of suspected high concentrations of hazardous materials; (b) protective clothing which may be required during the sampling procedures; (c) contingency plans for emergencies, including a list of telephone numbers for ambulance service, hospital, fire department, police department and poison control; and directions to the nearest medical facility. The necessary protective clothing and safety procedures will be determined by the Site Health and Safety Officer (SHSO) before sampling activities begin.

2.2 SAMPLING SCHEDULES

The sampling schedules for the three (3) water sampling programs at the Kennon site are set forth below:

2.2.1 SAMPLING SCHEDULE - MONITOR WELLS - KENNON SITE

Sampling for Priority Organic Pollutants - Volatiles is accomplished on a quarterly basis at selected monitoring wells, in compliance with the TDEC-approved GroundWater Monitoring Plan published in November, 1988. This list for volatiles is the same as those listed under EPA's Total Toxic Organic-Volatiles list. Sampling and analysis for the full EPA Priority Pollutants list, less pesticides and PCB's, is accomplished at those specified monitoring wells on an annual basis, in conjunction with the sampling and analysis for volatiles for that particular quarter. This is normally accomplished in the fourth quarter of each calendar year.

2.2.2 SAMPLING SCHEDULE - CITY OF BRENTWOOD SEWER SAMPLING

Genesco's sewer discharge permit requires semi-annual sampling and analysis for flow, biochemical oxygen demand (BOD), suspended solids, oil and grease, pH, ammonia, Iron, zinc, cadmium and magnesium. In addition, the City of Brentwood verbally requested that the quarterly analysis for volatiles, which is accomplished at the City of Brentwood sewer inlet (Manhole "X"), be provided to them. They likewise have requested that the annual analysis for the sample collected for TDEC at Manhole "X" and analyzed for the full Priority Pollutants List (less pesticides and PCB's) be provided to them. This request has also been, and will continue to be, honored. As previous samples have shown no detectable amounts of these materials, this analysis will be performed annually, will be called the Comprehensive Sample and Analysis, and will include the analysis for parameters collected on a quarterly basis, as outlined below, as well. Should the comprehensive sample taken on an annual basis show a constituent above the regulatory limit, the source will be identified, where possible, and that particular constituent, or class of constituents, will be sampled on a quarterly basis until two consecutive quarterly analyses show that parameter not exceeded.

On a quarterly basis, samples will be collected and analyzed for volatile organics priority pollutants (see attached listing) to ensure that the trace amounts previously found stay well within the criteria for discharge into the City of Brentwood sewer system. These will be analyzed utilizing EPA test method 8240 by a laboratory certified by the State of Tennessee for wastewater analysis.

2.2.3 <u>SAMPLING SCHEDULE - SOURCE REMOVAL PHASE - GROUNDWATER DISCHARGE</u> MONITORING PROGRAM

1. BASELINE ANALYSIS: Previous groundwater monitoring on the site has shown no detectable amounts of metals, pesticides, PCB's or cyanides. Also, levels of Blological Oxygen Demand, 5-day (BOD_s), Chemical Oxygen Demand (COD), oil and grease, suspended solids, or pH recorded have not caused a concern over water quality to be discharged into the City of Brentwood sewer system. Only small amounts of certain volatile organic compounds have been found in the groundwater, all of which are projected to easily meet the City of Brentwood/Metropolitan Government of Nashville and Davidson County (METRO) criteria.

During the Source Removal Phase of the site remediation project (from November 1990 through January 1991, and again from April through October 1991, to verify the groundwater quality, a Baseline Sample was collected on the first day that source material was excavated. The Baseline Sample included a laboratory analysis for the parameters shown in the attached table (see the Water Monitoring Results following in this section of this report) and was performed by a laboratory certified by the State of Tennessee for performing wastewater analysis.

- 2. MONTHLY ANALYSIS of GROUNDWATER DISCHARGE: The Baseline Analysis was repeated monthly to ensure that wastewater quality for all baseline parameters remained within the City of Brentwood and METRO limits.
- 3. <u>WEEKLY ANALYSIS VOLATILE ORGANICS</u>: Since trace amounts of volatile organic compounds have previously been found in the groundwater discharge from this site, samples for the Organic Priority Pollutants Volatiles, were collected on a weekly basis when excavation was being accomplished to ensure that the sewer discharge remained within the City of Brentwood/METRO limitations.
- 4. <u>SAMPLING METHODOLOGY</u>: Because of the potential presence of Volatile Organic Compounds in the site wastewater, grab samples were collected for all analyses.
- 5. <u>SAMPLING SCHEDULE TABLE</u>: The attached table (see the Groundwater Monitoring Schedule for the Kennon Site following in this section of this report) presents the above sampling schedule and results in tabular form.

2.3 SAMPLING EQUIPMENT

Sampling equipment necessary for the collection of representative wastewater samples for all sampling programs is presented below:

- 1. Several gallons of distilled water and properly cleaned wash bottles
- 2. Plastic sheeting or large size garbage bags
- 3. Bottom filling Teflon or stainless steel bailer with appropriate nautical rope lengths
- 4. Graduated, glass or Teflon sample collection and quantification containers
- 5. Appropriate laboratory-prepared sample containers
- 6. Sample bottle labels, waterproof marking pen
- 7. pH meter

- Thermometer
- Specific conductivity meter
- 10. Preservatives for water samples (unless already in sample containers)
- 11. Field data forms, clip board, pen
- 12. Ice chest and ice or freezer packs
- 13. Steel measuring tape
- 14. Flashlight
- 15. Appropriate collection/holding/reach equipment
- 16. Clean rags or wipes
- 17. Laboratory grade detergent

2.4 FIELD ANALYSIS PROCEDURES - ALL SAMPLING PROGRAMS

Analyses of pH, temperature and specific conductance will be made in the field at the time of the sampling because these parameters can change rapidly after the sample is collected. Enough water will be removed from each sampling point to determine the temperature of the water, specific conductivity, and pH. These values will be recorded on a field data sheet and the surplus water dispensed in such a manner so as to avoid potential contamination. Instruments will be calibrated before and after sampling to ensure that the sample collected is representative of the aquifer at that point, or of the wastewater flow.

Samples for volatile organics will be taken in VOA vials and properly filled and Inverted to insure the absence of air in the sample container.

Other containers as specified by the Metropolitan Government of Nashville and Davidson County and/or the City of Brentwood will be utilized, where directed. Immediately after the sample is collected with either a bailer or with another type sample collection device, it will be transferred to the sample containers containing the appropriate preservatives.

2.5 SAMPLE COLLECTION METHODS

Sampling will be conducted in the sewer man-hole, monitoring well or lift station as specified by the sampling plan. Sample collection containers or a bailer are to be used to obtain the sample which will then be poured into the laboratory-supplied container. Such collection container or bailer will be decontaminated as specified below prior to sample collection. A "clean capture" methodology will be used to prohibit contamination of the collection container from the walls of the sewer pipe, flume or holding tank itself.

For monitoring well samples, a stainless steel or Teflon baller will be utilized for purging approximately three well volumes of standing water in well casings, as well as for the collection of the sample itself. The pH and specific conductance of the purged water will be tested periodically to ensure that the sample is representative of the aquifer and is not affected by the conditions at the well. If consistent readings of these parameters are obtained over the purging period, it will be assumed that the evacuation of standing water in the well is adequate.

The VOC sample will be collected with the same bailer used for purging the well, and bailers will be carefully decontaminated as specified below between each sampling location.

For monitoring sewer discharge samples and process tank samples, either a stainless steel or

Tetion bailer or special glass or stainless steel collection container will be used for collecting the wastewater or sewer samples. Samples will be poured from the collection containers into the sample containers without making direct contact between the two vessels. Sample containers will be immediately labeled and appropriate notations made in the Water Sampling Log as shown in this section of this report.

2.5.1 DECONTAMINATION PROCEDURE

Bailers and other sample collection containers will be rinsed with tap or distilled water, washed with a laboratory-grade detergent solution, rinsed with distilled water, and allowed to air dry. The bailers and other sample collection containers will be wrapped in aluminum foil for transportation between sample locations. The use of organic solvents such as acetone or isopropyl alcohol for decontamination will not be utilized due to the risk of introducing false positives into the analysis protocols.

2.6 SAMPLE PRESERVATION

The attached table (immediately following this section of this report) presents the wastewater sampling and testing considerations, including the type and quantity of preservatives, for a wide range of constituents which include those being sampled at this location. In most cases, the containers are prepared by the analytical laboratory and the preservatives also furnished by them for the specific sampling being accomplished. Samples will be maintained at the required temperature by transporting them in special containers which contain either ice or ice packs specifically made for such refrigeration purposes.

2.7 FIELD BLANKS, RINSATE BLANKS, DUPLICATES, SPLITS

The following information applies to the use of field blanks, rinsate blanks, duplicates and splits, for all sampling programs.

2.7.1 FIELD BLANKS

One (1) Field Blank will be obtained during each daily sampling event for Volatile Organic Compounds, by pouring laboratory-supplied, purged water for VOA sample blanks into a VOA vial. It will be labeled, handled and transported with the other VOA samples collected that day. The laboratory will perform the same analysis on the VOA Field Blank as the other VOA samples collected, to determine if contamination of samples in transportation or a systematic laboratory error may have occurred.

2.7.2 RINSATE BLANKS

Where sample collection containers or a bailer is used at more than one sample location during a daily sampling event, one sample of the rinsate from that container or bailer will be collected in a VOA vial and will be analyzed with the other samples, to determine if the decontamination process adequately cleaned the sample collection container or bailer. If more than one decontamination method is used, or more than one supply of laboratory-grade detergent is utilized in the decontamination process, a rinsate blank will be obtained each time the method or detergent is changed.

2.7.3 DUPLICATES

Each VOA sample will be collected in duplicate VOA vials, to allow for a margin of error in either

sampling or laboratory personnel's handling of VOA vials. If the first VOA vial is successfully analyzed, its duplicate will not be analyzed.

2.7.4 **SPLITS**

If samples are to be split with a regulatory agency or other authorized personnel, both samples will be collected at the same time and will be marked or tagged so that each may be identified as a split of the other.

If different sample collection containers or bailers are utilized to obtain the samples, both parties' Water Sampling Logs will be noted as such.

3.0 SAMPLE DOCUMENTATION

The following sets forth the sample documentation criteria.

3.0.1 FIELD SAMPLE MEASUREMENTS

The field samples to be collected can be classified into two categories: (a) in-situ measurements, and (b) laboratory measurements:

1. IN-SITU MEASUREMENTS:

These measurements are made immediately after the sample has been collected. The data will be recorded directly onto the Water Sampling Log form as shown in the attached Exhibit 2-1, along with identifying information on sampling conditions and location. In-situ measurements include the following: pH, temperature and conductivity.

2. LABORATORY MEASUREMENTS:

Samples collected and preserved in the field to be shipped to the appropriate laboratory for chemical analyses are specified as laboratory measurements. Identifying information on sampling

conditions and location of sample will be recorded as indicated above, together with a record of the required analyses for each of the samples collected.

3.0.2 CHAIN-OF-CUSTODY

Documentation of sample custody is an Important part of field and laboratory operations when samples are needed for regulatory agencies or for litigation. Chain of custody procedures will document sample possession from the time of collection to disposal, in accordance with guidelines established in the EPA Safety Manual for Hazardous Waste Site Investigations (September, 1980). In order to document sample custody, the following Chain of Custody procedures will be followed. For the purpose of these procedures, a sample is considered in custody if it is:

- in actual possession of the responsible person;
- (2) in view, after being in physical possession;
- (3) locked so that no one can tamper with it, after having been in physical custody or possession: or

(4) in a secured area, restricted to authorized personnel.

Each field sample collected will be identified by a sample tag or label on the container itself which is filled out using water-resistant ink. Included on the tag or label, which is usually supplied by the laboratory, are the sample identification number, date, time and location of sample collection, designation of the sample (whether grab, pumped, or composite), the type of sample and preservative, if any, and any pertinent remarks. The signature of the sampler will also be included on the tag or label.

This information will be recorded on the Water Sampling Log form along with any in-situ measurement data and field observations. After collection and identification, the sample will be maintained under the chain of custody procedures as specified elsewhere in this document. If the sample collected is to be split with a governmental or regulatory agency, then the appropriate sample receiver will be indicated on the split sample tag which is affixed to the container containing the split sample and on the sampling log.

3.1 SAMPLE TRANSFER AND SHIPMENT

The following guidelines will be followed in transferring and shipping samples:

- With the shipping record prepared for each laboratory, samples will be properly packaged for shipment and dispatched to the appropriate laboratory for analysis. Shipping containers will be properly secured for shipment and will be affixed with signature seals if an individual other than the sampler will be delivering the samples to the analytical laboratory.
- When transferring possession of samples, the individual relinquishing the sample and the new custodian of the sample will sign the record and will note the date and time. A copy of the signed record will be made by the previous custodian and sent to the receiving laboratory to allow tracking of sample possession. All Change of Custody of samples must be a person-to-person exchange of both custody documents and samples. A copy of custody documents will be returned by the laboratory performing the analysis after the samples have been received, and again with the final data package.

3.2 LABORATORY CUSTODY PROCEDURES

General guidelines describing methods for laboratory sample custody are contained in the QA/QC documentation of the analytical laboratory selected to analyze the samples, and may be provided upon request.

4.0 DATA REDUCTION, VALIDATION, INTERPRETATION AND REPORTING

The reduction of the laboratory data, validation of the procedures utilized, the interpretation of the results and the reporting of the results to the client or to the regulatory agency will be accomplished as directed by the client. Laboratory validation data from the laboratory performing the analysis will accompany the report where such validation is necessary.

WASTEWATER SAMPLING AND TESTING CRITERIA

MOSELY & ASSOCIATES, INC. WASTEWATER SAMPLING AND TESTING CRITERIA

Parameter Harts	Contractor 1	Preservation Technique ^{2,2}	Max. Holding Time ⁴	Burrole Vol. Recommend
urtal Teatre				•••
Cofform, least and total Feast streptococci	P. G	Cool, 4 ⁶ C, 9.008% Na ₂ S ₂ O ₃ S Same as Above	6 Hours 8 Hours	150 mls 150 mls
garic Teate: Acidity	P. a	Cool, 4 [®] C	14 days	250 mls
Alkalinity	P, G	Cool, 4 [®] C	14 days	250 mls
Ammonia	r, a	Cool, 4°C, HySO, to pH<2	25 days	\$00 mls
Blochemical exygen demand	₽. a	Cool, 4 ⁰ C	48 hours	800 mis
Bromide	P. 0	None Required	28 days	200 mis
Blochemical oxygen demand, ox/banaceout	P, G	Cool, 4°C	48 hours	\$00 mls
Chemical oxygen demand	P. O	Cool, 4 [®] C, H ₂ SO ₄ to pH < 2	28 days	100 mHs
Chloride	F, a	None Required	26 days	200 m/s
Chlorine, total residual	P, G	None Required	Analyza immediately	200 mis
Cotor	P. a	Cool, 4 ⁹ C	48 hours	250 mle
Oyenide, total and amenable to thiorination	ř, G	Cool, 4 ⁶ C, NaOH to pH>12, 0.8g/1 ascorbio acid	14 days ⁸	1,000 mle
Fluoride	P	Hone Required	28 days	100 mls
Hardness	P, G	HNO3 to pH < 2, H2504 to pH < 2	& months	100 mls
Hydrogen Ion (pH)	P, Q	None Required	Analyza immediately	100 m/s
IQeldaN and organic narogen	P, a	Cool, 4°C, H ₂ SO ₄ to pH<2	28 days	500 mls
Chromium VI	P. G	Cool, 4 [®] C	24 days	500 m/s
Mercury ⁷	P, G	HNO ₃ to pH < 2	28 days	500 mln
Merkus ⁷ , except Chromium VI and mercury	P, G	HNO3 to pH < 2	8 months	500 mls
Nyale	P, a	Cool, 4°C	48 hours	SCO mis
Nev ate colorite	F, G	Cool, 4 ^{eC,} H ₂ SO ₄ to pH <2	28 days	900 m/s
Nitte	P, G	Cool, 4 ⁰ C	48 hours	800 mis
Off and Gresse	Q	Сооі, 4 ⁰ С, H ² 5О ₄ 10 pH < 2	28 days	1000 mle
Organic carbon	P, Q	Cool, 4°C, HCl or H ₂ SO ₄ to pH < 2	26 days	100 mls
Orthophosphala	P, Q	Fitter Immediately, Cool 40C	48 hours	200 mls
Oxygen, Dissolved Probe	G Bottle & Top	None Required	Analyze immediately	Not Applicable
Phinals	Q only	Coal, 4 ⁸ C, H ² SO ₄ to pH < 2	28 days	500 mls
Phosphorus (elemental)	P. a	Cool, 4 [®] C	48 hours	2000 mle
Phosphorus, total	P, G	Cool, 4 [®] C, H ² SO ₄ to pH <2	26 days	500 mls
Pendue, total	₱, g	Cool, 4 [®] C	7 days	SCC) mile
Pesidue, Filherjable	P, a	Cool, 4 th C	7 days	acco mile
Pesidue, Honfilterable (TS\$)	₽ , g	Cool, 4 [®] C	7 days	500 mHz
Pendue, Settleable	P, a	Cool, 4 ^e C	48 hours	1000 mle
Pasidue, volstile	P, a	Cool, 4 ⁸ C	7 days	SOO mis
Specific conductance	P, a	Cool, 4°C	28 daye	500 mls
Suffare	P. G	Cool, 4 [®] C	28 days	500 mfs
Suthde	P. G	Cool, 4 [®] C add zinc sortate plus NaOH to ph>8	7 days	250 mls
Sultin	P, G	None Required	Analyze immediately	250 min
Surfactants	P, G	Cool, 4 [®] C	48 hours	500 mis
Temperature	P, a	None Required	Analyze immediately	Hot Applicable
Turbidity	P, G	Cool, 4 [®] C	48 hours	

Parameter Name

geria Testa ⁸ Purgesble halocs/boris	Container ¹	Preservetion Technique 2,3	Mex. Holding Time 4	Berryle Vol. Personnendud
Purpeable aromatic hydrocarbons	Q, Tefion- aned septure	Cool, 4°C, 0.006% Na ₂ 5 ₂ O ₃ 5	14 days	40 mls
Aprotein and aprylonitrile	G, Teflon- lined septum	Cool, 4 ⁸ C, 0,008% Na ₂ \$ ₂ O ₃ \$, HCl to pH2	14 days	40 mis
Phenois 11	G, Teflon- Bned septum	Cool, 4 ⁶ C, 0.006% Na ₂ 5 ₂ O ₃ 5, Adjust pH to 4-5	14 days	40 mls
Benzidines 11	Q, Teflon- aned osp	Cool, 4°C, 0.008% Ne ₂ 5 ₂ O ₃ 5	7 days until extraction. 40 days after extraction	2,000 mile
Phihalate enters 11	Q, Teffon- Bried cap	Cool, 48C, 0.006% Nag8gO38	7 days until extraction ¹³	2,000 min
Mirosamines ¹¹ , 14	Q, Teflon- Ened cap	Cool, 4 ⁶ G	7 days until extraction. 40 days after extraction.	2,000 mis
PC81s, ¹¹ sorylonitrite	G, Teffon- Ened cap	Cool, 4 ⁶ C, store ig dark, 0.006% Ne ₂ B ₂ O ₃	7 days until extraction. 40 days after extraction.	2,000 mile
Nitroarometics and isophorone	G, Tefion- Ened cap	Cool, 4 ⁸ C	7 days until extraction. 40 days after extraction.	2,000 mls
Polynuciear arematic	G, Teflon- Ined cap	Cool, 4°C, 0.008% Na ₂ S ₂ O ₃ S etore in dest	7 days until satraction. 40 days after extraction.	2,000 m/s
}tsloothers ¹¹	G. Teflon- Bned osp	Cool, 4 ₀ C, 0.006% Na ₂ \$ ₂ O ₃ ⁸ store in dark	7 days until extraction. 40 days after extraction.	2,000 m/s
Chlorinated hydrocerbone 11	G, Teffon- aned cap	Cook, 4°C, 0.000% Na282038	7 days until extraction, 40 days after extraction,	2,000 mis
TCC0 ¹¹	G. Teflon- fined cap	Cool, 4°C	7 days until extraction, 40 days efter extraction,	2,000 mle
	Q, Teffon- Ened oup	Cool, 4°C, 0.006% Na ₂ S ₂ O ₃ S	7 days until extraction, 40 days after extraction.	2,000 mls
Perticides (!	G. Teffon- lined cap	Cool, (^o C, pH 5-8 ¹⁵	7 days until satraction. 40 days after extraction.	1,000 mhs
diological Teels: Alpha, bets and radium	P. 0	HNO ₃ to pH < 2	€ months	3,000 mile

COMMENTS

Container, preservation procedure, and maximum holding time are adapted from 40 CFR 136, Table 8, Required Containers, Preservation Techniques and Holding Time, dated 1-4-85, Sample Volume Recommended is a consensus of recommendations from analytical laboratories. HOTE:

used for analyses, tolyethylene (P) or Glass (G).

2 Sample preservation should be performed immediately upon sample collection. For composite chemical samples each aliquot should be preserved at the time of collection. When use of an automated sampler makes it impossible to preserve each aliquot, then chemical samples may be preserved by meintaining at 4° C until compositing and samples applitude is composited.

at the time of collection. When use of an automated sampler makes it impossible to preserve each sitiquot, then chemical samples may be preserved by meintaining at 4° C until compositing and sample spitting is complated.

When any sample is to be shipped by common carrier or sent through the United States Mall, it must compty with the Department of Transportation Hazardous Materials Regulations (48 CFR Part 172). The person effecting such meterial for transportation is responsible for ensuring such compliance. For the preservation requirements of Table II, the Office of Hazardous Materials Materials Transportation bureau, Department of Transportation has determined that the Hazardous Materials Regulations of one of properties of the CPI) in water solutions of 0.04% by weight or less (pM about 1.96 or greater); Nitric sold [NO.] in water solutions at concentrations of 0.15% by weight or less (pM about 1.52 or greater); Suffuric sold [N.O.] in water solutions at concentrations of 0.15% by weight or less (pM about 1.52 or greater); and Sodium hydraxide (Ne.O.) in water solutions at concentrations of 0.00% by weight or less (pM about 1.15 or greater); and Sodium hydraxide (Ne.O.) in water solutions at concentrations of 0.00% by weight or less (pM about 1.15 or greater); and Sodium hydraxide (Ne.O.) in water solutions at concentrations of 0.00% by weight or less (pM about 1.15 or greater); and Sodium hydraxide (Ne.O.) in water solutions at concentrations of 0.00% by weight or less (pM about 1.15 or greater); and Sodium hydraxide (Ne.O.) in water solutions at concentrations of 0.00% by weight or less (pM about 1.15 or greater); and Sodium hydraxide (Ne.O.) in water solutions at concentrations of 0.00% by weight or less (pM about 1.15 or greater); and Sodium hydraxide (Ne.O.) in water solutions at concentration or less (pM about 1.15 or greater); and Sodium hydraxide (Ne.O.) in water solutions at concentration or less (pM about 1.15 or greater); and Sodium hydraxide (Ne.O.) in water solutions at concentration or less

- for a shorter firms if knowledge salets to show that this is necessary to maintain sample stability. See paragraph 136.3(e) for details. Should only be used in the presence of residual chlorine.

 Maximum holding time is 24 hours when Suffide is present. Optionally all samples may be tested with lead acetate paper before pH adjustment in order to distermine it Suffide is present, it can be removed by the addition of cadmium nitrate powder until a negative spot test is obtained. The sample is filtered and then his OH is added to pH 12.

 Samples should be filtered immediately on-the before adding preservative for dissolved metals. Guidance applies to samples to be analyzed by GC, LC, or GC/MS for specific compounds.

 Sample receiving no pH adjustment must be analyzed within sevan days of sampling, in the pH adjustment must be analyzed within three days of samples to not required it accorded within three days of samples.

- of sampling.

 When the extractable snaintes of concern (all within a single chemical category, the specified preservative and maximum holding times should be observed for optimum sategorard of sample integrity. When the analysis of concern (all within two or more chemical categories, the sample may be preserved by cooling to 4° C, radiuding residual chlorine with 0.00%; south inhousitate, storing in the dark, and adjusting the pit to 5°t, samplest preserved in this manner may be held for seven days before extraction and holding time procedure are noted in footnote 5 (re; the requirement for thiosulfate radiuction of residual chlorine), and footnotes 12, 13 (re) the analysis
- of benzidine). 1.2 diphenythydrazine is filety to be present, adjust the pH of the sample to 4.0 plus or minus 0.2 to prevent rearrangement to benzidine.

1,2-diphenymyoristine is many to be present, adjust the pri or she sample to supput or minus 0.2 to prevent restrangement to beneficine. Extracts may be stored up to seven days before analysis if storage is conducted under an inert (oxidant-fee) strottphere. For the analysis of diphenyintrosamine, add 0.008% Ma_3_0_3 and adjust pH to 7-10 with NaCH within 24 hours of sampling. The pH adjustment may be performed upon receipt at the laboratory and may be omitted if the samples are extracted within 72 hours of collection. For the analysis of addin, add 0.008% Ma_3_0_0.

CITY OF BRENTWOOD SEWER PERMIT AND REQUIREMENTS



City of Brentwood

5211 MARYLAND WAY • BRENTWOOD, TENNESSEE 37027 • PHONE (615) 371-0060 MAILING ADDRESS. P.O. BOX 788 • BRENTWOOD, TN 37024 0788

JOHN C. GRISSOM DIRECTOR, WATER AND SEWER DEPARTMENT

May 29, 1992

WATER AND SEWER DEPARTMENT 1750 GEN GEORGE PATTON DRIVE BRENTWOOD, TN 37027 TELEPHONE 16151 371-0080 FAX 46151 371-2225

Mr. Ralph E. Mosely Environmental Consultant Mosely and Associates 232 Genesco Park Nashville, Tennessee 37217

RE: Genesco Inc. - Kennon Site Wastewater Discharge Permit -Renewal of Old Permit

Dear Mr. Mosely:

Thank you for the application which was mailed to me on March 1992 for renewal of the Wastewater Discharge Permit for the Kennon site.

Application has been approved for the next two years.

Copies of the permit has been forwarded to others.

Please call me if there are any questions.

Sincerely,

Lanny Moore

Ms. Brenda Apple, Depart. of Environment and Conser.

Mr. Jim Kirby, Hart-Freeland-Roberts

Mr. Jim Hale, Genesco Mr. Bob Carnahan, Metro

DEPARTMENT OF WATER AND SEWERAGE SERVICES 5211 Maryland Way

Brentwood, Teanessee 37212

Page 1 of 1

Permit No. 89-001

PERMIT FOR THE DISCHARGE OF INDUSTRIAL WASTES

In accordance with the provisions of Tennessee Code Annotated Section 69-3-108 and Regulations promulgated pursuant thereto; and the CITY OF BRENTWOOD, Ordinance No. 81-25.

PERMISSION IS HEREBY GRANTED TO

GENESCO, INC. 232 Genesco Park Nashville, Tennessee 37217

FOR THE DISCHARGE OF

A Groundwater Collector System from the Kennon Farm disposal site under remediation

In accordance with the application filed on May 28, 1992 in the City Hall of the City of Brentwood, Tennessee, and in conformity with approved plans, specifications and other data submitted to the City in support of the above application, all of which are filed with and considered as a part of this permit, together with the following named conditions and requirements.

GENESCO, INC. shall comply with the rules and regulations of Metro Ordinance No. 080-343, an Ordinance establishing new criteria for use of the publicly owned treatment works of Nashville and Davidson Coupty, Tennessee.

Issued this First day of June 1992	City Manager, City of Brentwood, IN
Expire Thirty-First day of May 1994	pirector, Dept. of Water & Saverage

March 15, 1990

Mr. James W. O'Brien Vice President Genesco, Inc. 232 Genesco Park Nashville, Tennessee 37217

RE:

PERMIT NO. 89-001

City of Brentwood, Tennessee

Dear Mr. O'Brien:

The Metro Government has requested the enclosed rules and regulations should be attached to your Discharge Permit No. 89-001 that was issued to Genesco by the City of Brentwood.

Please contact me if you have any questions.

Yours truly,

HART-FREELAND-ROBERTS, INC.

James G. Kirby, P.E.

JGK:jm

pc:

Mr. Ralph Mosely w/copy of attached Mosely & Associates, Inc. 232 Genesco Park Nashville, TN 37217

Mr. John Grissom

PART I

A. LIMITATIONS ON WASTEWATER STRENGTH AND MONITORING REQUIREMENTS

No permittee shall discharge wastewater in excess of the concentration set forth in the table below unless: (1) an exception has been granted the user under the provisions of Section 40-1-187 Part II of the Metropolitan Code or, (2) the wastewater discharge permit of the user provides as a special permit condition a higher interim concentration level in conjunction with a requirement that the user construct a pretreatment facility or institute changes in operation and maintenance procedures to reduce the concentration of pollutants to levels not exceeding the standards set forth in the table within a fixed period of time.

PARAMETER	MAXIMUM CONCENTRATION mg/L (FLOW PROPORTIONAL COMPOSITE SAMPLE	MAXIMUM INSTANTANEOUS CONCENTRATION mg/L (GRAB SAMPLE)
Ammonia Nitrogen	30.0	60.0
Biochemical Oxygen Demand	300.0	600.0
Chemical Oxygen Demand	500.0	1000.0
Suspended Solids	325.0	650.0
Arsenic (As)	1.0	2.0
Cadmium (Cd)	1.0	2,0
Total Toxic Organics (TTO)	50.0	100.0
Chromium - Total (Cr)	5.0	10.0
Chromium - Hexavalent (Cr6)	0.05	0.1
Copper (Cu)	5.0	10.0
Cyanide (CN-)	2.0	4.0
Lead (Pb)	1.5	3.0
Mercury (Hg)	0.1	0.2
Nickel (Ni)	5.0	10.0
Selenium (Se)	1.0	2.0
Silver (Ag)	5.0	10.0
Zinc (Zn)	5.0	10.0
Oil & Grease		
(Freon Extractable)	50.0 .	100.0

1. CRITERIA TO PROTECT THE TREATMENT PLANT INFLUENT

The Director shall monitor the treatment works influent for each parameter in the following table. The Municipal User shall be subject to the reporting and monitoring requirements set forth in this permit as to these parameters. In the event that the influent at the treatment works reaches or exceeds the levels established by said table, the Director shall initiate technical studies to determine the cause of the influent violations, and shall initiate such remedial measures as are necessary, including, but not limited to, the establishment of new or revised pretreatment levels for these parameters. The Director may also change any of these criteria in the event the POTW effluent standards are changed or in the event changes are deemed advisable for effective operation of the POTW.

2. PARAMETER: MAXIMUM CONCENTRATIONS (ppm)/FLOW PROPORTIONAL COMPOSITE SAMPLE

	CWWTP	DCWWTP	<u>MCMM15</u>
Ammonia	30.0	30.0	10.2
Arsenic	0.1	0.1	0.011
Boron	2.0	2.0	0.3
Cadmium	0.007	0.0016	0.0011
Calcium	2500.0	2500.0	2500.0
Chromium Total	1.5	0.51	0.51
Copper	1.0	0.52	0.52
Iron	0.17	0.07	0.07
Lead	5.0	5.0	1.0
Magnesium	0.23	0.23	0.23
Manganese	50.0		6.8
Mercury	11.8	11.8	11.8
Nickel	0.004	0.0009	0.0009
Phenols	0.52	0.32	0.32
Pyrene	0.6	0.03	0.03
Silver	0.0002	0.0002	0.0002
Sodium	6.2	6.2	6.2
Sulfate			23.8
Sulfide .	500.0		•
Zine			0.34
Butyl Benzylphthalate	2.7	0.43	0.43
Di-N Butyl Phthalate	0.003	0.003	0.003
Di-N Octyl Phthalate	0.03	0.03	0.03
2,4,5 TP Silvex	0.006	0.006	0.006
	0.01	0.01	0.01

3. PREVENTION OF ACCIDENTAL DISCHARGES

All Municipal Users shall provide such facilities and institute such procedures as are reasonably necessary to prevent or minimize the potential for accidental discharge into the POTW of waste regulated by this permit from liquid or raw material storage areas, from truck and rail car loading and unloading areas, from inplant transfer or processing and materials handling areas, from diked areas or holding ponds of any waste regulated by this permit. The permittee shall notify the POTW immediately by telephone of any slug loading, as defined by Metropolitan Code Section 40-1-186.

B. MONITORING PROCEDURES

- Samples and measurements taken in compliance with the monitoring requirements of this permit shall be representative of the volume and nature of the monitored discharge during a normal production day and shall be taken as follows:
 - a. Be performed on FLOW-PROPORTIONAL SAMPLES REPRESENTATIVE OF THE TOTAL WASTEWATER FLOW discharge to the CITY OF BRENTWOOD Sewerage System with the maximum time interval between samples being no longer than sixty (60) minutes.
 - b. Be conducted in accordance with U. S. Environmental Protection Agency protocol. The results must be reported to the lowest detectable limit of the methodology.
 - c. Provide the flow rate for which the results are indicative to the nearest 100 gallons per day.

2. SAMPLE LOCATION

The samples will be collected at a manhole as shown on the plans prior to connection to the Brentwood Collection System.

TEST PROCEDURES

- a. Test procedures for the analysis of pollutants shall conform to regulations published pursuant to Section 304 (h) of the Clean Water Act of 1977, under which such procedures may be required.
- b. Unless otherwise noted in the permit, all pollutants parameters shall be determined according to methods prescribed in Title 40, CFR, Part 136, as amended, promulgated pursuant to Section 304 (h) of the Act.
- c. GENESCO, INC. must sample and analyze <u>SEMI-ANNUALLY</u> for the following parameters:

FLOW, BIOCHEMICAL OXYGEN DEMAND, SUSPENDED SOLIDS, OIL & GREASE, pH, AMMONIA, IRON*, ZINC*, CADMIUM*, AND MAGNESIUM*.

^{*}INDICATES PARAMETERS OF CONCERN AT THE RECEIVING P.O.T.W.

4. HAINTENANCE OF RECORDS

Any Municipal User subject to the reporting requirements established in this section, shall maintain records of all information resulting from any monitoring activities required by this section. Such records shall include for all samples:

- (a) The date, exact place, method, and time of sampling and the names of the persons taking the samples;
- (b) The date analyses were performed.
- (c) Who performed the analyses;
- (d) The analytical techniques/method used; and
- (e) The results of such analyses.

Any Municipal User required by this paragraph to submit a similar report to the State of Tennessee or EPA under the provisions of 40 CFR 403.12, may submit to the Director a copy of said report in lieu of a separate report to the Director provided that all information required by this permit is included in the report to the State of Tennessee or EPA.

RECORDS RETENTION

ž.

Any Municipal User subject to the reporting requirements established in this permit shall be required to retain for a minimum of four (4) years any records of monitoring activities and results (whether or not such monitoring activities are required by this permit) and shall make such records available for inspection and copying by the Department of Water and Sewerage Services, the Division of Water Quality Control-Tennessee Department of Health and Environment, or the Environmental Protection Agency. This period of retention shall be extended during the course unresolved litigation regarding the permittee or when requested by the Department of Water and Sewerage Services, the Division of Water Quality Control-Tennessee Department of Health and Environment, or the Environmental Protection Agency.

6. DURATION OF THE PERMIT

Wastewater discharge permits shall be issued for a period stated on the permit. Notwithstanding the foregoing, users becoming subject to a National Pretreatment Standard shall apply for new permits on the effective date of such National Pretreatment Standards. A user must apply in writing for a renewal permit within the period of time not more than ninety (90) days and not less than thirty (30) days prior to expiration of the current permit. Provided further, that limitations or conditions of a permit are subject to modification or changes due to changes in applicable water quality standards, changes in Metro's NPDES permit, changes in the limitations of wastewater strength or POTW protection criteria, changes in other applicable law or regulation, or for other just causes.

7. TRANSFER OF A PERMIT

Wastewater discharge permits are issued to a specific user for a specific operation. A wastewater discharge permit shall not be reassigned, transferred or sold to a new owner, new user, or for different premises, unless approved by the Department of Water and Sewerage Services.

C. REPORTING

1. MONITORING RESULTS

Monitoring results shall be submitted <u>SEMI-ANNUALLY</u> using Discharge Monitoring Report Forms supplied by the City. A copy should be retained for the permittee's files. Discharge Monitoring Reports must be signed and certified by a principal municipal executive officer or ranking elected official, or his duly authorized representative. Such authorization must be submitted in writing and must be submitted in writing and must explain the duties and responsibilities of the authorized representative. Discharge Monitoring Reports and any communication regarding compliance with the conditions of this permit must be sent to:

CITY OF BRENTWOOD, TENNESSEE P. O. Box 788
Brentwood, Tennessee 37024-0788

Attn: Mr. John Grissom

2. REPORTING SCHEDULE

THE FIRST DISCHARGE MONITORING REPORT IS DUE March 1, 1990. ADDITIONAL MONITORING REPORTS MUST BE RECEIVED IN THIS OFFICE ON OR PRIOR TO SEPTEMBER 1, 1900; MARCH 1, 1990; SEPTEMBER 1, 1991; ETC, UNTIL THIS PERMIT EXPIRES.

3. ADDITIONAL MONITORING BY PERMITTEE

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form. Such increased frequency shall also be indicated.

4. FALSIFYING REPORTS

Knowingly, making any false statement on any report required by this permit may result in the imposition of criminal penalties as provided for in Section 309 of the Federal Water Pollution Control Act, as amended.

PART II

A. NATIONAL PRETREATMENT STANDARDS

Certain Municipal Users are now or hereafter shall become subject to National Pretreatment Standards promulgated by the Environmental Protection Agency specifying quantities or concentrations of pollutants or pollutant properties which may be discharge into the POTW. All Industrial Users subject to a National Pretreatment Standard shall comply with all requirements of such standard, and shall also comply with any additional or more stringent limitations contained in their permit. Compliance with National Pretreatment Standards for existing sources subject to such standards or for existing sources which hereafter become subject to such standards shall be within three (3) years following promulgation of the standards, unless a shorter compliance time is specified in the standard. Compliance with National Pretreatment Standards for new sources shall be required upon promulgation of the standard. Except, where, expressly, authorized by an applicable National Pretreatment Standard, no Industrial User shall increase the use of process water or in any way attempt to dilute a discharge as a partial or complete substitution for adequate treatment to achieve compliance with such standard.

B. PROHIBITIONS ON STORM DRAINAGE AND GROUND WATER

Storm water, ground water, rain water, street drainage, roof top drainage, basement drainage, sub-surface drainage, or yard drainage, if unpolluted shall not be discharged through direct or indirect connections to a community sewer unless a storm sewer or other reasonable alternative for removal of such drainage does not exist, and then only when such discharge is permitted by the user's wastewater discharge permit and the appropriate fee is paid for the volume thereof.

C. LIMITATION ON RADIOACTIVE WASTE

No permittee shall discharge or permit to be discharge any radioactive waste into a community sewer except:

- (1) When the user is authorized to use radioactive material by the Tennessee Department of Public Health or the Nuclear Regulatory Commission:
- (2) When the waste is discharged is strict conformity with applicable laws and regulations of the aforementioned agencies, or any other agency having jurisdiction; and
- (3) When a copy of permits received from said regulatory agencies have been filed with the Department of Water and Sewerage Services.

D. PROHIBITIVE DISCHARGE STANDARDS

(1) No permittee shall introduce into the publicly owned treatment works any of the following pollutants which acting either alone or in conjunction with other substances present in the POTW interfere with the operation of the POTW as follows:

- a. Pollutants which could create a fire or explosion hazard in the POTW;
- b. Pollutants which cause corrosive structural damage to the POTW, but in no case discharges with a pH lower than 5.0 or higher than 10.0;
- c. Solid or viscous pollutants in amounts which cause obstruction to the flow of the sewers, or other interference with the operation of or which cause injury to the POTW, including waxy or other materials which tend to coat and clog a sewer line or other appurtenances thereto;
- d. Any pollutant, including oxygen demanding pollutants (BOD, etc.) released in a discharge of such volume or strength as to cause interference in the POTW;
- e. Heat in amounts which will inhibit biological activity in the POTW resulting in interference, but in no case heat in such quantities that the temperature at the treatment works influent exceeds 40 degrees Centigrade (104 degrees Fahrenheit). Unless a higher temperature is allowed in the user's wastewater discharge permit, no user shall discharge into any sewer line or other appurtenance of the POTW wastewater with a temperature exceeding 65.5 degrees Centigrade (150 degrees Fahrenheit).

The aforesaid pollutants represent a general description of harmful or dangerous conditions, and are in addition to such specific pollutants as may be identified and added from time to time to the Industrial User's Permit.

- (2) The permittee shall notify the Industrial Compliance Section on any of the following changes in user discharge to the system no later than 180 days prior to change of discharge:
 - a. New introductions into such works of pollutants from any source which would be a new source, if such source were discharging pollutants.
 - b. New introductions of pollutants into such works from a source which would be subject to the Sewer Use Ordinance if it were discharging such pollutants.
 - c. A substantial change in volume or character or pollutants being discharged into such works at the time the permit is issued.
- (3) This notice will include information on the quality and quantity of the wastewater introduced by the new source into the publicly owned treatment works, and on any anticipated impact on the effluent discharged from such works.

PART III

The City of Brentwood shall establish and maintain a Pretreatment Program in accordance with 40 CFR 403 with all changes and corrections. The City of Brentwood, as part of their Program, shall permit and sample or cause to be sampled, in accordance with current protocol; (1) all Industries covered by an enacted or proposed Categorical Pretreatment Standard; (2) all Industries with wastewater flows or strength of compatible pollutants, that would be considered significant contributors to their system. The City of Brentwood shall have legal authority established to enforce their Pretreatment Program. The City of Brentwood shall submit their report to the Metropolitan Department of Water Services, Industrial Compliance Section on the first of September and the first of March, semi-annually, consisting of; (1) the current State of Tennessee format for Pretreatment reporting, (2) results of sampling performed by the City of Brentwood, in accordance with their Trunk and Treatment Agreement with the Metropolitan Government and/or requirements of this permit.

The City of Brentwood's Pretreatment Submittal shall be reviewed by Metro Water Services and transmitted to the State of Tennessee as part of Metro Water Services Pretreatment Submittal.

Metro Water Services shall be the Control Authority for the City of Brentwood relative to all aspects of Pretreatment reporting and enforcement. Metro Water Services shall have the right to audit and/or inspect the City of Brentwood's Pretreatment Program at any time during the effective dates of this permit.

PERMIT SUMMARY

THE CITY OF BRENTWOOD SHALL SAMPLE AND ANALYZE SEMI-ANNUALLY FOR THE FOLLOWING PARAMETERS:

FLOW, BIOCHEMICAL, OXYGEN DEMAND, SUSPENDED SOLIDS, OIL & GREASE, AMMONIA, pH, LEAD, ZINC, CADMIUM, IRON, AND MAGNESIUM

GROUNDWATER SAMPLING SCHEDULE

TABLE 2-3

GROUNDWATER SAMPLING SCHEDULE Kennon Site - Brentwood, Tennessee

1. KENNON SITE - WELL MONITORING PROGRAM

Quarterly samples of selected monitor wells analyzed for Organic Priority Pollutants - Volatiles, and annual sample for full Priority Pollutants List, less pesticides and PCB's. These samples are required until the site is de-listed by TDEC.

II. CITY OF BRENTWOOD SEWER SAMPLING PROGRAM

Quarterly sample taken at the manhole to City of Brentwood sewer system for Organic Priority Pollutants - Volatiles, with semi-annual Baseline Analysis for the "METRO" list. These are required as long as the site is connected to the City of Brentwood sewer system.

III. SOURCE REMOVAL PHASE - GROUNDWATER DISCHARGE MONITORING PROGRAM

Weekly samples of discharge to sewer for Organic Priority Pollutants - Volatiles, and monthly Baseline Analysis for the "METRO" List required during the excavation of source material in 1990 and 1991.

WATER SAMPLING SCHEDULE FOR THE KENNON SITE

1993 - 1995

SAMPLE COLLECTION PERIOD			SAMPL	ING LOC	ATIONS						
		ntermedia nitoring W			_	radient ng Wells		SEWER	TEST REQUIRED		
PERIOD	UN-1	UN-2	UN-5	UN-3	UN-4	W-10	W-25				
1st Quarter - 1993								х	Priority Pollutants-Volatiles		
2nd Quarter - 1993	Х			Х		X		Х	Priority Pollutants-Volatiles; "Metro List" for sewer		
3rd Quarter - 1993								Х	Priority Pollutants-Volatiles		
4th Quarter - 1993	Х	х	Х	х	х	Х	Х	х	Full Priority Pollutants List (less pesticides and PCB's) and "Metro List"		
1st Quarter - 1994								Х	Priority Pollutants-Volatiles		
2nd Quarter - 1994	Х			Х		Х		х	Priority Pollutants-Volatiles; "Metro List" for sewer		
3rd Quarter - 1994								Х	Priority Pollutants-Volatiles		
4th Quarter - 1994	x	Х	. x	х	х	Х	Х	х	Full Priority Pollutants List (less pesticides and PCB's) and "Metro List"		
1st Quarter - 1995								Х	Priority Pollutants-Volatiles		
2nd Quarter - 1995	Х			Х		х		х	Priority Pollutants-Volatiles; "Metro List" for sewer		
3rd Quarter - 1995								х	Priority Pollutants-Volatiles		
4th Quarter - 1995	. ~x	х	Х	×	Х	Х	Х	Х	Full Priority Pollutants List (less pesticides and PCB's) and "Metro List"		

WATER SAMPLING SCHEDULE FOR THE KENNON SITE

1996 - 1998

			SAMPL	ING LOC	ATIONS							
SAMPLE COLLECTION PERIOD	lr Mor	ntermedia nitoring W	te lelis		Downg	radient ng Wells		SEWER	TEST REQUIRED			
	UN-1	UN-2	UN-5	UN-3	UN-4	W-10	W-25					
1st Quarter - 1996								x	Priority Pollutants-Volatiles			
2nd Quarter - 1996	X			X		Х		X	Priority Pollutants-Volatiles; "Metro List" for sewer			
3rd Quarter - 1996								х	Priority Pollutants-Volatiles			
4th Quarter - 1996	х	х	х	×	х	Х	х	Х	Full Priority Pollutants List (less pesticides and PCB's) and "Metro List"			
1st Quarter - 1997								×	Priority Pollutants-Volatiles			
2nd Quarter - 1997	Х			Х		Х		×	Priority Pollutants-Volatiles; "Metro List" for sewer			
3rd Quarter - 1997								×	Priority Pollutants-Volatiles			
4th Quarter - 1997	×	х	. x	×	Х	×	x	Х	Full Priority Pollutants List (less pesticides and PCB's) and Metro List			
1st Quarter - 1998								х	Priority Pollutants-Volatiles			
2nd Quarter - 1998	Х			Х		Х		Х	Priority Pollutants-Volatiles; "Metro List" for sewer			
3rd Quarter - 1998						,		X	Priority Pollutants-Volatiles			
4th Quarter - 1998	x	х	х	х	х	Х	Х	X	Full Priority Pollutants List (less pesticides and PCB's) and Metro List			

WATER SAMPLING SCHEDULE FOR THE KENNON SITE

1999 - 2001

			SAMPL	ING LOC	ATIONS							
SAMPLE COLLECTION	lr Mor	ntermedia nitoring W	eiis		Downg Monitor	radient ng Wells		SEWER	TEST REQUIRED			
	UN-1	UN-2	UN-5	- UN-3	UN-4	W-10	W-25]				
1st Quarter - 1999								×	Priority Pollutants-Volatiles			
2nd Quarter - 1999	Х			Х		Х		X	Priority Pollutants-Volatiles; "Metro List" for sewer			
3rd Quarter - 1999								Х	Priority Pollutants-Volatiles			
4th Quarter - 1999	Х	Х	Х	×	X	x	х	X	Full Priority Pollutants List (less pesticides and PCB's) and "Metro List"			
1st Quarter - 2000								х	Priority Pollutants-Volatiles			
2nd Quarter - 2000	Х			Х		Х		Х	Priority Pollutants-Volatiles; "Metro List" for sewer			
3rd Quarter - 2000								х	Priority Pollutants-Volatiles			
4th Quarter - 2000	Х	х	×	X	×	×	×	X	Full Priority Pollutants List (less pesticides and PCB's) and "Metro List"			
1st Quarter - 2001			•					х	Priority Pollutants-Volatiles			
2nd Quarter - 2001	Х			Х		Х		Х	Priority Pollutants-Volatiles; "Metro List" for sewer			
3rd Quarter - 2001								Х	Priority Pollutants-Volatiles			
4th Quarter - 2001	X 	Х	Х	Х	Х	Х	х	Х	Full Priority Pollutants List (less pesticides and PCB's) and "Metro List"			

NOTE: The above schedule continues until the site is de-listed by the Tennessee Department of Environment and Conservation.

WATER SAMPLING LOG

MOSELY & ASSOCIATES, INC. Water Sampling Log

		<u> </u>	
Project Name/No:			
Site Location:			
Sample Well/Point:			
Weather:			
Time Sampling Began:	Time Sampling Complete	ed: Date:	
	EVACUATION DATA - WELL	SAMPLING ONLY	
Description of Measuring Point:			
Listed Elevation of MP (ft msl):	Total	al Sounded Depth of Well Below N	IP:
Listed Surface Elevation (ft msl)	: Sou	inded Depth of Water Below MP:	
Height of MP Above Land Surface	ce: Hel	ght of Water Column in Well:	
Listed Depth of Boring (ft):	Gal	ions Pumped/Balled Prior to Samp	ilng:
Diameter of Casing:			
Gallons per Foot in Casing:			
Evacuation Method:			
	SAMPLING DATA/FIELD	PARAMETERS	
Color: Odor:	Appearance:	Temperature:	
Other (Specification; OVA; HNU;	etc.):		
Specific Conductance, umhos/cr	m:	pH:	
Sampling Method and Material:			
	SAMPLE CONTAINER L	DESCRIPTION :	
	er mm www.trransmith		
Laboratory Supplying Container	s:		
Sample Container/Vial Number	r Type Contain	ner Preserva	atlon
Remarks:			
Sampling Personnel:			
GAL/FT 1-1	Well Casing Volu 1/4" = 0.077 2" = 0.16	imes 3" ≈ 0.37 4" ≈ 0.065	

1-1/2" = 0.10 2-1/2" = 0.24 3-1/2" = 0.50 6" = 1.46

CHAIN OF CUSTODY RECORD

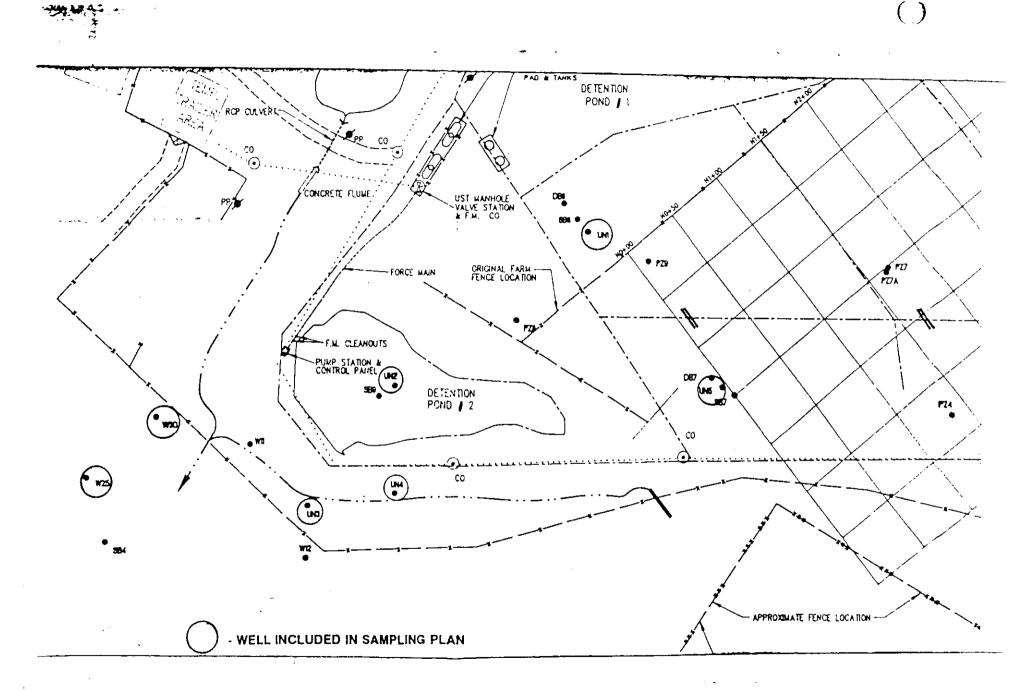
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PROMPTO AND STREET		

CHAIN-OF-CUSTODY RECORD

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alpping Container ID:			<u> </u>														
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Enquished by:			Organiza	itlon:				Recak	ed by:_				_ Organ	ization:_			1/04
								Data									./**

(Use extra sheets, If necessary)

LOCATION OF MONITORING WELLS IN SAMPLING PROGRAM



MAP DEPICTING LOCATIONS OF WELLS TO BE SAMPLED

LIST OF PRIORITY POLLUTANTS TO BE ANALYZED

"METRO LIST"

Flow
Biochemical Oxygen Demand (BOD₅)
Suspended Solids (SS)
Oil and Grease (O & G)

рΗ

Ammonia Iron Zinc Cadmium Magnesium

EPA PRIORITY POLLUTANTS LIST (Less Pesticides and PCB's)

ORGANIC

Volatiles Benzene Bromoform Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane 2-Chloroethylvinyl ether Chloroform Dichlorobromomethane 1.1-Dechloroethane 1.2-Dichloroethane 1,2-Dichloroethylene 1,2-Dichloropropane 1,3-Dichloropropene Ethylbenzene

Methyl Bromide Methyl chloride

Methylene chloride

Tetrachloroethylene
Toluene
Trans-1,2-dichloroethylene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethylene
Vinyl chloride

1,1,2,2-Tetrachloroethane

Acid and Base/Neutral Extractables 2-Chlorophenol 2,4-Dichlorophenol

2,4-Dimethylphen ol 4,6-Dinitro-o-cresol 2,4-Dinitrophenol 2-Nitrophenol 4-Nitrophenol P-chloro-m-cresol

Pentachlorophenol Phenol 2,4,6-Trichlorophenol Acenaphthene

Acenaphthylene Anthracene Benzidine

Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Bis-2-chloroethoxymet hane
Bis(2-chloroethyl) ether
Bis(2-chloroisopropyl) ether
Bis(2-ethylhexyl) phthalate
4-Bromophenyl phenyl ether

2-Chloronaphthalene4-Chlorophenyl phenyl ether

Butyl benzyl phthalate

Chrysene

Acid and Base/Neutral

Extractables (Cont.)
Dibenz(a,h)anthracene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
3,3-Dichlorobenzidine
Diethyl phthalate
Di-n-butyl phthalate
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-n-octyl phthalate

1,2-Diphenyl-hydrazlne Fluoranthene Fluorene

Hexachlorobenzene Hexachlorobutadiene Hexachlorocyclopentadiene

Hexachloroethane Indeno(1,2,3-cd)pyrene

Isophorone Naphthalene Nitrobenzene

N-nitrosodimethylamine N-nitrosodi-n-propylamine N-nitrosodiphenylamine

Phenanthrene

Pyrene

1,2,4,-Trichlorobenzene

INORGANIC/OTHER

Antimony Arsenic Asbestos Beryllium Cadmium Chromium Copper Cyanide Lead Mercury

Nickel Phenois Selenium Silver Thallium Zinc STATUS, CONSTRUCTION DETAILS AND LOCATION OF WELLS

STATUS OF WELLS - KENNON SITE

A total of 56 groundwater monitoring wells were drilled on the Kennon property. Many of the wells were designed and used during the initial investigation activities on the property; others were designed for use as groundwater monitoring wells. Several of the wells have been damaged by farm equipment (i.e., W-27, SB-12, W-28, W-17, W-19) and others are screened in extremely low permeability zones and do not produce sufficient water for sampling purposes (e.g., PZ-1, PZ-7A, W-20, W-21, W-22, W-18, W-13, W-14, SB-10, SB-12, SB-13).

The following Status of Wells Report lists all wells and describes those proposed to be retained in the sampling program, as well as those proposed to be closed. The map and construction details charts that follow contain additional information relative to the Kennon site wells.

It is proposed that those wells identified as unsuitable for sampling be closed in 1994 or 1995. The remainder of the wells would either be included in the groundwater sampling program or available for alternates, if needed, for the program, and would be closed as a part of site de-listing procedures when specified by TDEC.

Well closure will follow Tennessee Rule 1200-4-10, Well Construction and Abandonment Standards, with the exception of 1200-4-10-.09(b)3, which specifies well chlorination prior to sealing. Since this would introduce chlorinated hydrocarbons into the shallow aquifer which might interfere with subsequent groundwater analysis, this requirement is not deemed appropriate for this site.

STATUS OF WELLS Kennon Site - Brentwood, Tennessee

Well Number	Status	Reason
DB1	Will Be Closed	Upgradient, t∞ deep for meaningful sample.
DB2	Will Be Closed	Upgradient, too deep for meaningful sample.
DB3	Will Be Closed	Upgradient, too deep for meaningful sample.
DB4	Will Be Closed	Too deep for meaningful sample.
DB5	Will Be Closed	Too deep for meaningful sample.
DB6	Will Be Closed	Too deep for meaningful sample.
DB7	Will Be Closed	Too deep for meaningful sample.
DB8	Will Be Closed	Too deep for meaningful sample.
P Z 1	Will Be Closed	None or limited recovery.
PZ2	Will Be Closed	Upgradient of site.
P Z 3	Will Be Closed	Upgradient of site.
PZ4	Remain Open	Alternate for UN5.
PZ5	Will Be Closed	Upgradient of site.
PZ6	Will Be Closed	Upgradient of site.
PZ7	Remain Open	Alternate for UN5.
PZ7A	Will Be Closed	None or limited recovery.
PZ8	Remain Open	Alternate for UN1, UN9
P Z 9	Remain Open	Alternate for UN1, UN9
SB1	Will Be Closed	Upgradient of site.
SB2	Will Be Closed	Upgradient of site.
SB3	Will Be Closed	Upgradient of site.
SB4	Remain Open	Alternate for W25.
\$85	Remain Open	Alternate for W25.
SB6	Will Be Closed	Upgradient of site.
SB7	Remain Open	Alternate for UN5.

Well Number	Status	Reason
SB8	Remain Open	Alternate for UN1.
SB9	Remain Open	Alternate for UN2.
SB10	Will Be Closed	None or limited recovery.
SB11	Remain Open	Alternate for UN1, UN5.
SB12	Will Be Closed	Damaged by farm equipment/none or limited recovery.
SB13	Will Be Closed	None or limited recovery.
UN1	Remain Open	Included in groundwater sampling plan.
UN2	Remain Open	Included in groundwater sampling plan.
UN3	Remain Open	Included in groundwater sampling plan.
UN4	Remain Open	Included in groundwater sampling plan.
UN5	Remain Open	Included in groundwater sampling plan.
W10	Remain Open	Included in groundwater sampling plan.
W11	Remain Open	Alternate for W10.
W12	Remain Open	Alternate for W10.
W13	Will Be Closed	None or limited recovery.
W14	Will Be Closed	None or limited recovery.
W15	Remain Open	Alternate for W25.
W16	Remain Open	Alternate for W23.
W17	Will Be Closed	Damaged by farm equipment.
W18	Will Be Closed	None or limited recovery.
W19	Will Be Closed	Damaged by farm equipment.
W20	Will Be Closed	None or limited recovery.
W21	Will Be Closed	None or limited recovery.
W22	Will Be Closed	None or limited recovery.
W23	Remain Open	Alternate for W25.
W24	Remain Open	Alternate for W25.
W25	Remain Open	Included in groundwater sampling plan.

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Well Number	Status	Reason
W26	Will Be Closed	Upgradient of site.
W27	Will Be Closed	Upgradient of site/damaged by farm equipment.
W28	Will Be Closed	Upgradient of site/damaged by farm equipment.
W29	Will Be Closed	Upgradient of site.

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Table 4. Construction Details of Monitor Wells Installed by Geologic Associates, Inc.

WELL NO.	DATE DATE	SURFACE ELEV.	MEAS. PT. ELEV. (It msl)	SCREENED INTERVAL (Depth, ft)	FILTER PACK INITERVAL (Depth, ft)	DENTONITE SEAL INTERVAL (Depth, (t)	CHOUT BACKFILL INTERVAL (Depth, (t)	AUCER OR HASH BIT RETUSAL (Depth, (t)
PZ-1	1/15/86	777.1	780.3	20.55 - 30.55	12.0 - 31.3	9.6 - 12.0	0 - 9.6	5,6
PZ-2	1/15/86	778.08	781.2	20.7 - 30.7	6.0 - 30.7	4.5 - 6.0	0 - 4.5	5.4
P2-3	1/17/86	787.25	790.0	20.7 - 30.5	6.5 - 30.7	5.0 ~ 6.5	0 - 5.0	5.7
P2-4	1/17/86	790.40	793.6	20.0 - 30.0	7.0 - 31.2	5.0 - 7.0	0 - 5.0	5.7
P2-5	1/20/86	797.70	800.6	21.0 - 32.0	6.0 - 32.0	4.0 - 6.0	0 - 4.0	5.0
PZ-6	1/21/86	808.47	alo.5	18.5 ~ 28.5	10.5 - 28.5	9.5 - 10.5	0 - 4.5	9.3
P1-7	1/23/86	779.08	762.0	5.0 - 8.5	5.0 - 8.3	3.5 - 5.0	0 ~ 3.5	6.1
P2-7A	1/24/86	778.77	781.5	11.4 - 21.4	7.5 - 21.4	6.0 - 7.5	0 - 6.0	6.3
PZ-8	1/27/86	777.60	780.7	8.0 - 11.1	8.0 - 11.0	6.0 - 8.0	0 - 6.0	9.9
P2-9	1/28/86	777.0	779.4	7.5 - 10.4	7.0 - 10.4	5.5 - 7.0	0 - 5.5	7.4
₩-10	3/04/86	769.8	772.1	5.4 - 13.2	3.7 - 13.2	1.7 - 3.7	0 - 1.75	7.8
₩-11	3/04/86	768.83	771.2	1.8 - 7.2	1.8 - 7.2	0 - 1.8		4.9
₩-12	3/04/86	771.19	773.5	4.1 - 9.5	3.1 - 9.5	1.0 ~ 3.1	0 - 1.0	7.2
₩-13	3/04/86	764.07	776.5	1.4 - 7.0	1.1 - 7.0	0 - 1.3		4.6
₩-14	3/04/86	767.29	769.7	2.6 - 5.5	2.6 - 5.5	0 - 2.6		3.5
₩-15	3/14/86	765.16	767.6	3.6 - 6.5	2.6 - 6.5	0 - 2.6		4.5
W-15	3/04/86	767.5	769.9	6.1 - 11.5	5.1 - 11.5	2.6 - 5.1	0 - 2.6	1.2
₩-17	3/14/96	758.3	760.6	2.0 - 7.5	2.1 - B.O	0 - 2.1		5.7
₩-18	3/14/86	759.0	761.4	4.7 - 9.2	3.4 - 9.2	1.2 - 3.4	0 - 1.2	7.0
₩-19	3/14/86	759.9	761.3	5.6 - 11.0	4.6 - 11.0	2.6 - 4.6	0 - 2.6	8.5
₩-20	3/14/86	751.2	753.6	3.7 - 6.5	2.7 - 6.5	0 - 2.7	,	4.4
₩-21	2/20/86	750.31	752.7	6.0 - 11.5	5.2 - 11.5	J.2 - 5.2	0 - 3.2	8.5
₩-22	2/28/86	750.0	752.4	2.2 - 7.8	2.0 - 7.0	0 - 2.0		5.4
H-23 .	2/28/86	744.63	747.0	6.5 - 14.5	4.5 - 14.5	2.5 - 4.5	0 - 2.5	11.3
₩-24	3/03/84	745.0	748.0	8.5 - 13.8	7.0 - 13.8	4.5 - 7.0	0 - 4.5	11.3
₩-25	3/14/86	765.10	767.5	1.5 - 6.9	3.0 - 6.9	0 - 3.0		6.5
₩-26	3/03/86	792.10	794.5	8.0 - 21.2	6.5 - 21.2	3.0 - 6.5	0 - 3.0	10,9
₩-27	3/03/86	794.79	797.1	1.0 - 11.6	1.6 - 11.6	0 - 1.6		7.0
H-28	3/03/86	764.99	767.4	3.0 - 11.0	2.5 ~ 11.0	0 - 2.5		5.4
H-29	3/04/86	822.0	824.4	16.7 - 44.5	10.2 - 44.5	8.2 - 10.2	0 - 8,2	1.1

NOTES

- 1. Measuring points are top of PVC casing.
- 2. Total depth of each well is the bottom of the filter pack.
- 1. All casing is 2-inch-diameter PVC, flush threaded.
- 4. All screen is 2-inch-diameter PVC, slotted (0.01 in slot).
- 5. Wells PZ-1 through PZ-9 wash-bored to bedrock (6-inch-diameter borehole).
- 6. Wells W-10 through W-29 augered to bedrock (6-inch-diameter borehole).
- 7. All wells except W-25 cored from top of bedrock to total depth (3-inch-diameter corehole).

Table 7. C&M Monitor-Well Construction Details

Well Number	Surface Elevation (ft msl)	Top of Casing* Elevation (ft msl)	Surface** Casing	Top of** Bentonite Seal	Top of** Filter Pack	Top of** Screen	Total Depth of Boring
D81	793.3	796.87	35.0	102.2	107.1	108.9	119.4
DB2	787.2	790.22	21.5	91.0	95.5	97.7	108.2
DB3	771.0	773.76	27.0	68.2	72.0	74.5	94.9
DB4	744.8	747.84	20.0	76.8	80.3	82.4	92.9
DB5	760.7	764.09	25.0	93.2	97.4	99.6	110.1
DB6	790.5	793.68	35.0	126.8	129.8	132.9	143.7
DB7	779.2	782.41	22.0	94.3	100.7	103.9	114.3
DB8	777.9	781.06	30.0	86.0	95.7	98.7	109.1
SB1	820.2	823.62	18.0	18.4	25.6	26.7	37.1
SB2	788.2	791.11	7.5	8.5	12.5	14.5	20.0
SB3	771.6	774.34	12.0	19.4	23.2	24.7	30.2
SB4	768.1	771.09	8.5	7.8	10.4	12.8	18.4
<i>\$</i> 85	760.5	763.40	8.5	7.6	12.1	13.6	19.2
SB6	790.6	793.96	10.0	23.1	26.6	28.7	34.3
SB7	780.0	783.36	13.5	11.7	14.5	16.6	22.0
SB8	777.9	781.12	12.0	11.3	14.3	16.8	22.2
SB9	770.7	773.79	6.5	8.8	13.3	15.4	20.8
SB10	781.9	784.85	7.5	12.0	16.5	18.6	24.0
SB11	780.4	783.82	9.0	12.8	16.1	18.4	23.8
SB12	783.6	786.68	9.0	12.3	16.8	18.9	24.3
SB13	784.3	787.36	8.0	12.8	16.5	18.9	24.3
UN1	777.4	780.45	N/A	3.4	7.1	7.2	9.4
UN2	770.6	773.70	N/A	0.1	2.1	2.2	4.5

^{*} Top of 2-in-diameter casing (water level measuring point)
** Measured depth in feet below land surface

ADDITIONAL MONITORING WELLS IN 1988

Well Number	Installation Date	Surface Elevation (ft msl)	Measurement Point Elevation (ft msl)	Screened Interval (depth, ft)	Filter Pack Interval (depth, ft)	Bentonite Seal Interval (depth, ft)	Total Depth of Boring (ft)
UN-3	05/11/88	770.50	773.00	3.1 - 5.2	2.5 - 5.2	0.0 - 2.5	5.2
UN-4	05/10/88	772.05	774.33	4.6 - 6.7	3.0 - 6.7	0.0 - 3.0	6.7
UN-5	05/10/88	780.01	782.22	8.2 - 10.3	3.0 - 10.3	0.0 - 3.0	10.3

NOTE: Depth, ft measurements are from land surface.

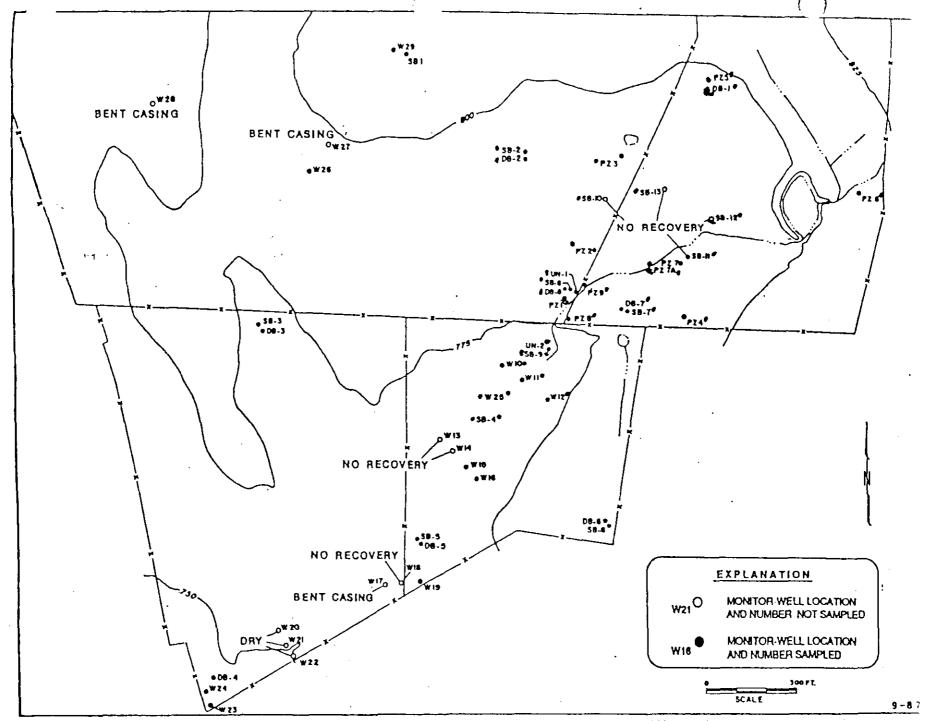


FIGURE 27. GROUND-WATER QUALITY SAMPLING POINTS (JULY 1987)

GROUNDWATER MONITORING RESULTS
TDEC WELL MONITORING PROGRAM

QUARTERLY/BI-ANNUAL MONIT

IG PROGRAM - KENNON SITE

USEPA METHOD 8240	}			PRE-	CONSTRUC	CTION BGD	SAMPLE -	2/20/89 & 3	/29/89			
OR EPA HSL VOLATILES	UN-1	UN-2	UN-3	UN-4	UN-5	W-10	W-11	W-12	W-25	FB	RB	TB
Acetone					11.00							
Benzene	.02	.002					ļ	1		,	1	
Bromodichioromethene	10 i 194 - 196 i	Wyama Ki k							3143 TV			
Bromoform	1						1			[
Bromomethane :	are english.				La Maria				100			
2-Butanone												
Carbon Disuifide	11.000	7 8			150 1 to 100 at	1.6		7 7 7 7 7				
Carbon Tetrachioride										1		
Chlorobenzene		Series		17.44	建设。	g North Hamilton	ali di di digela				11.0	
Chloroethane		129			.09	1		,		Ţ		
Chloroform					eliging for \$40	e kale disk						
Chioromethane							1					
Dibromochlorometherie			,4 et.2-		ggar i k eij	affer affer		5 (4)		I		
1,2-Dichlorobenzene												
1,3-Dichlorobenzene		30 S 40 S 6: V	j. Walker (House)	V 170 (170)					100	1		
1,4-Dichlorobenzene									T	1		
1,1-Dichloroethane	.32	.114	,01	ingles of the N	.14		The state of the s	14, 400, 440,		1		
,2-Dichloroethene	.06	<u> </u>]		
1,1-Dichloroethene	LV ABY TANK		atawa ng Estima		\$ \$200 C 2 198	18 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	848/100 to 5		åge i ekkister	1		
Trans-1,2-Dichloroethene	.47	.108			23					1		
2-Dichloropropant	nej Tzako 244 garusti		74. P.A.	girth egit	septim galing	\$ 11000		5.843	roje. Wa	1		[
CIS-1,3-Dichloropropene									<u> </u>	1	T	
Trans-1,3-Dichloropropens	10,000,000		Barrie e vii	94 A 134 B	Austria Tribas	1. 10.79	317 1	. (4.)14 -14	3 5 3 6		1	
Ethyl Benzene	.04											
2-Hexanone		†				20 × 4		100	1 4.81	1		
Methylene Chloride				<u> </u>	,	 	 					
4-Methyl-2-Pentanone			-	- A				(\$\display \)	1	1		
Styrene		 	 		<u> </u>	 	 		1	1		1
1,1,2,2-Tetrachioroethene		11 13 A \$ 1 8 1 A		J 25 4 5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Apple 18 1	3.43,443,5	131	V 807 (400)	1	†	1	1
Tetrachloroethene	1	1	 	1	1		1		1	T	1	1
Toluene	5.9	,003	3.22	\$1550,5 × 0.56	an indigensia di Cara	grader egg alalig		1 1 1 2 2 2				1
1,1,1-Trichloroethene	.07	.051				1	· · · · · · · · · · · · · · · · · · ·		1	1	1	
1,1,2-Trichloroethene		garja nastanjijan .	Para Dilegia de la	Ref. North Link	Carrier of a	884 (1997) B	ander the s	1.744.52	F1 2151			1
Trichloroethene	<u> </u>	.007	 	 		<u> </u>	 	J	1	 		1
Vinyl Acetate	S. 1888	\$0.00 me 100 me	4400 P. W. S.	Association (S.	2.73	36.73.	(8 6 T 4 L A	71 Part 36	2001.19	<u> </u>		1
Vinyl Chloride		.011		1			 		 			1
Total Xylenes	27		800000				38339	9000 - 1 00 000 - 14 (1.11)	<u> </u>	17		1
Total-1,2-Dichloroethylene		20.00.000.00000000000000000000000000000	1				<u> </u>	<u> </u>	 	 		
1,1-Dichloroethylane	1945	330 25 75 75	8-100 Sec. 100	(Balance 19 W	V. V. W. W. W.	30000	8000000	<i></i>	30 V 20 V	1	1	1
NO VOLATILES DETECTED			 		200000000000000000000000000000000000000	•		•	 	•		1

TDEC WELL MONITORING - ANALYSIS OF RESULTS (All results in milligrams/liter) QUARTERLY/BI-ANNUAL MONITORING PROGRAM - KENNON SITE

USEPA METHOD 8240	Ţ	1ST QRTJ	1991 - 4/9/91				2ND QTRJ 1	991 - 6/21/91		
OR EPA HSL VOLATILES	UN-3	W-10	MB	TB	RB	TB	UN-1	UN-3	W-10	W-25
Acetone	The state of the s	9 10 s		1 4 4 4		<u> </u>				
Benzene							.0014J			1
Bromodichloromethene		123 446 4 5 5		1 4 1 1211 W	Aliana III	1	an style			
Bromoform										
Bromomethane		12 THE	1 7 2	1.5						
2-Butanone										
Carbon Disutfide	Agriculturiya.	sitarians al la c		4.00	Tiple 1		11 11 11			
Carbon Tetrachloride										
Chlorobenzens	A 100 HO 000 A 100 H	#8 8 0 × 0 0	An we have		30,200 13111111		45, p. 108 (15 4 5g)			3.57
Chloroethane			1							
Chloroform	386.000000000000000000000000000000000000	100000000000000000000000000000000000000	and its program		\$100 BASE 6	0.0000J	e i i sed ejrejski	North Control		
Chloromethane										
Dibromochloromethene				The transfer was	* 1100000000000000000000000000000000000	ggest gjødt i palg	alle diseases	#10,100 Bibles		1444
1,2-Dichlorobenzene		-								
1,3-Dichlorobenzene	37, 87, 68, 7, 188	100 (2000)		* : : : : : : : : : : : : : : : : : : :	第二年第2年至1	Strategick und 1.3			of Let the the	e marker
1,4-Dichlorobenzene										
1,1-Dichloroethane			Januar Patier	C . PROPOSE		Arrest Contract	.034	.0026J		
1,2-Dichloroethane						1	.0061J	.0029J		
1,1-Dichloroethene		W Swallshir	1 (1 4874) 148	2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		a satura	8	April 1 Carlo		
Trans-1,2-Dichloroethene		 				 	0.22			† · · · · · · · · · · · · · · · · · · ·
1,2-Dichioropropene	: Jako ukojaji u	destrict or their	1.000	41 - 10ana	2. salas (d. 1				·	· ;
CIS-1,3-Dichloropropene	1	1	1	· 	†	 	·	† 		† · · · · · · · · · · · · · · · · · · ·
Trans-1,3-Dichloropropene		\$1.000000000000000000000000000000000000	Transfer to the second	- 1549-658Esc	1 S. A. S. S. S. S. S. S. S. S. S. S. S. S. S.	resolving and the first	1.74	1 44 1		
Ethyl Benzene		 			 	 	.0018J			
2-Hexanone	Programme Sec.		Parket Salar		Service Co.	 	·	· · · · · · · · · · · · · · · · · · ·		+
Methylene Chloride		1	1		0.0003J	.0006JB				1
4-Methyl-2-Pentanone	100000000000000000000000000000000000000	1		Carlera Higg	\$50000 to 1000			0 7 1 1.2.2		
Styrene		1			1	†	1		İ	
1,1,2,2-Tetrachloroethane		235 (30.00)	2000 Bloom 1880 B	53	\$60,000,000,000	14 (13)	A BHE DEVIL	and the second second		
Tetrachiomethene								1	<u> </u>	1
Tokuene	- 10 Op.	,0021		30.00 - 100.000 66.000	0.0014	digitation profuncionado	a a Allerajia.	makan ay sama 190		
1,1,1-Trichloroethane		1				.0057J				†
1,1,2-Trichioroethane	4. C. N. W. C. M. C.		# 18 18 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	K (1000) - 20000			800 AND SER	a jogovanie na		
Trichloroethene					1	.0025J	f 			
Virryl Acetate	100000000000000000000000000000000000000	4	20200		4 (0.000)	14 N. 18 N. 19	75-2 157-3 - 20 4	** 14 W.B.Z		10 G AP - N
Vinyl Chloride		1	1		1	.054	<u> </u>			1
Total Xylenea		1				Francisco (general)	#	7 m + + + 4 m	***************************************	The second of
Total-1,2-Dichloroethylene	1	1	<u> </u>	† 	1	<u> </u>				1
1,1-Dichloroethylene			300 300 1	Land State of Processing	\$60 (Calabara)		# 1, 10th 18.5	多卷七三二		. 1.1.1.1.1
NO VOLATILES DETECTED	-	1	•	·	 	<u> </u>		 	•	•

TDEC WELL MONITORING - ANALYSIS OF RESULTS (All results in milligrams/liter) QUARTERLY/BI-ANNUAL MONITORING PROGRAM - KENNON SITE

USEPA METHOD 8240	3RD Q	TR./ 1991 - 1	0/25/91				TH QTR. / 1	991 - 12/18/9	1		
OR EPA HSL VOLATILES	W-10	MB	TB	UN-1	UN-3	SB-7	W-10	W-25	TB	MB	MB
Acetone	0.012.J	sweet selection	0.0064J	0.16	.,4 .		,,,,,,	 			
Benzene	0.0009J			0.0015J			· · · · · · · · · · · · · · · · · · ·				
Bromodichioromethane	H 3 5 45 5 11 11	allimit dada ara		2					-		
Bromoform							<u> </u>			1	
Bromomethene			ii .								
2-Butanone							[
Carbon Disulfide		Section Contract	萨拉	0.012J	figure is the production	- A		Japan Kristin			
Carbon Tetrachloride							I				
Chlorobenzene	0.00081			1957 (1907) (1908)	38600 K. 16600 C.	新 18. (C.) (A.) (A.)	11 × 12 × 11	#J\$4#4 1	\$1415 BUL	2000/12/4/25 3	0.0014J
Chloroethane]			<u> </u>	
Chloroform Chloromethane		****		1.000	estatus estatus estatus estatus estatus estatus estatus estatus estatus estatus estatus estatus estatus estatu	granding and the	10 10 10 10 10 10 10 10 10 10 10 10 10 1	200		JAK L	
Dibromochioromethene	74	V 100 X 200						2000	30 A 14 1800	34 86 24 85 ASSA	1. 5. 5.0
1.2-Dichlorobenzene							 				0.0032J
1,3-Dichiorobenzene		3/	1.5 m				Park that cases to	110 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	STARTS NATION	Taran and Safety	0,0035J
1,4-Dichlorobenzene		f						f			0.0034J
1,1-Dichloroethane		V 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0.014	18 1 July 183	0.760	nay sinday is si	100 CO	aragoria e e Caraci	840	
1,2-Dichloroethana				1			1	 	t		
1,1-Dichloroethene	84 3 30000	-0-00 A (0)		30 - March	100 TO 100 A 100	29 50 politika 1931	V. 12	413000000000000000000000000000000000000		4.6 g - 10 h	A
Trans-1,2-Dichloroethana			-	0.019		0.2400		7.55.			
1,2-Dichloropropene	i vista di Antonio in Ri	100000000000000000000000000000000000000	De Garagne	75.00	10894-6184-641-61	MALES NO SERVE	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	13/20pt 1 2 1	339 - 6121 T. V. 1911 T.	100	
CIS-1,3-Dichloropropene							 				
Trans-1,3-Dichloropropens	0.00	100 000	1000 PH 1 1000 PA								
Ethyl Benzene							<u> </u>	<u> </u>		1	
2-Heranone									\$100 A 1 A 1		
Methylene Chloride	[
4-Methyl-2-Pentenone		A 40	60 m 80 m 20 m	* * * * *	1800	10 00 P & 10 0	3	333.00		1980 Miles (1984 1991)	\$2 1 1 N 10
Styrene						I					
1.1,2,2-Tetrachiomethene	*	100		Ø 30 00 00 00 00 00 00 00 00 00 00 00 00	***************************************	20 10 10 10 10 10 10 10 10 10 10 10 10 10	0.7774700000	800000000000000000000000000000000000000	.s/ac24883c	\$200 DOM:	general and c
Tetrachloroethene		-					T				
Tokuene-s		************	X,	*********	80. W. Sa 2000.	Stall Milkery	40.7 A 30.000	390.408	A. S. Princet.	30 04 V V V V V V V V V V V V V V V V V V	802 5 5 5
1,1,1-Trichloroethane	<u></u>							I	I		
		******			10 m	***	18 2 Mg	MAN,	May 4 19 119	Z160-6538 30110	Get Anti-Brits
Trichioroethene											
Virni Acetale		****		300	***	5 × 5 × ×	V. 02***	% (23) * 2 (2)	अधिका चु बेल्क्ट्रा	property software	10 m
Vinyl Chloride				L							
Total Xylones		1.4.44	* *	46	A-1838			39. 6 . 2	Same College	344,000	A. 1. 1. 11 11 11 11 11 11 11 11 11 11 11
Total-1,2-Dichloroethylene										<u> </u>	
1,1-Dichloroethylene			વર્ષ જુ	1000 1000 1000	an allege to be	Butterform, 11	and the	Marily Comment	operation of the section	#	Mary Congress
NO VOLATILES DETECTED		•			•				•		

TDEC WELL MONITORING - ANALYSIS OF RESULTS (All results in milligrams/liter) QUARTERLY/BI-ANNUAL MONITORING PROGRAM - KENNON SITE

USEPA METHOD 8240		1ST Q	TR./ 1992 - 3	3/16/92				2ND QTRJ 1	992 - 6/16/92	2	
OR EPA HSL VOLATILES	W-10	UN-3	TB	MB	MB	UN-1	UN-3	W-10	W-25	TB	MB
Acetone	01JB	.005JB	.0084JB	.0036JB	.0045J	a, digalga e				e e illustration	
Benzene		<u> </u>				1					· · · · · · · · · · · · · · · · · · ·
Bromodichioromethene	S. 19 S. 1885	i dja utilikas issas	7 F 1 7	~	0.126, 8 + + + + + + + + + + + + + + + + + +	::::	5.35 8 8 1.4g			9 7 7 7	
Bromoform					†	l	-				
Bromomethane		1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		-	<u> </u>	 		147		l	***************************************
2-Butanone					†						
Carbon Disulfide	A 1. A 2. A 2. A 2. A 2. A 2. A 2. A 2.	8			1						
Carbon Tetrachloride					<u> </u>						
Ohlorobenzene	્રાફ્રાફ્રાફ્રા અલ્લેસફ્રિકેટ્સફ્રાફ્ર	8	sis evi tibabili	ĕ ^r to ∓ar auc s	300 Tel. 1 1 1 1	2011 A 1940-0		.0007J	Nggwei .	tinge still var	***********
Chloroethene					1				<u> </u>		
Chloroform		10 A A A A A A A A A A A A A A A A A A A				12.45.70887831	Turkkerski	par njama Najvelje.	38-18-18-18-18-18-18-18-18-18-18-18-18-18	i di janjajahay ng	· · · · · · · · · · · · · · · · · · ·
Chloromethane				 				<u> </u>	 		
Dibromochioromethene	z jilikyyn cz W.	30.00	And the gurier	andrui ailes			# 145 <u>5</u> 4	Bayer, J. Jay	magazir car.	. P. 18 . L. 18	
1,2-Dichlorobenzene					1	1		1			
1,3-Dichlorobenzene	VIII E VIII U		Halley Halley		Territor in			\$6.45° kg + 1	Markey 18		
1,4-Dichlorobenzene					1						
1,1-Dichioroethene	Sec. 30 - 3 18 18	2000 100 200	584 - Julius			Mark Say	,0047J		NT HY		
1,2-Dichloroethene							-	<u> </u>	<u> </u>		
1,1-Dichloroetherre			, i entre		Section to the		.0027J				
Trans-1,2-Dichloroethene	<u> </u>										
1,2-Dichloropropene	Euscenfartioner	.g.300massg.gr	Ay jakar	ja välgetin yöke yk	3081240.310.0	ar indigental adjection	10.00	de Soone en en e	Mill of		
CIS-1,3-Dichioropropene							T				
Trans-1,3-Dichloropropens		1.000 A 1000 B	alien. Engelähis öğr	Suggression	Province Security States	100000000	e elektrik	ring r	4 2 4 4	1,	
Ethyl Benzens							1	.0015J	1		
2-Heranone		- Alternative Control	8/8/12/118/13 His					242 × 11	20.2		18 a 2
Methylene Chloride]						
4-Methyl-2-Pentanone		8.8	2000		* * * * * * * *	- Carlo					
Styrene									1	T	
1,1,2,2-Tetrachioroethene	8 8		4	363	3.42°			3-20 E. C.	J. 1851. X 2020.		投票
Tetrachioroethene	<u> </u>				Γ						
Tokiene	2000	. AP.			4	200		.0009.1	366 (100 - 100 -	1000	కుమాతు. ఇగ్రా క్ర
1,1,1-Trichloroethene					I	.0033J					
1,1,2-Trichloroethane			1 8000 8800		60 M	200000	7 · · · · · · · · · · · · · · · · · · ·	5 M 10 00 00	900 W.	19. 100 Sept. 198.	1441.521454×17
Trichloroethene						.0022.J			I		
Vinyl Acetate	2000 A 3000		2 - 19 9/889	84 (3 (3 (3 (3 (3 (4 (3 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4 	8.000	.898		Somethings	\$ 900 \$ \$ \$100 \(\text{col}\)	the property of	A Strill M.
Vinyt Chloride											
Total Xylenes	Segariti (1811 graph)		A parking and	nanagi Saladida		(4/3) (28 -3)	11 July 20 11 11 11 11 11 11 11 11 11 11 11 11 11	5 %,0013J	de Contra de la contra del la contra del la contra del la contra del la contra de la contra de la contra del la contra de la contra del la contra de	one organization	24.25 . 140.59. 14
Total-1,2-Dichloroethylene											
1,1-Dichloroethylene				e na najvene		636.7	27(232) 170	7. 14 m	1199, 20, 50	A STATE	455.2 1.2 56.36
NO VOLATILES DETECTED					I		I	L	_ ·	.	<u> </u>

TDEC WELL MONITORING - ANALYSIS OF RESULTS (All results in milligrams/liter) QUARTERLY/BI-ANNUAL MONITORING PROGRAM - KENNON SITE

USEPA METHOD 8240	3RD QTR / 1992	(9-16-8 2)		ATH QTR/1992 (12	-29-82)	1ST QTR/1983 (4-4	⊢0 3)	2ND QTR / 1993	(5- 6-8 3)	
OR EPA HSL VOLATILES	X ₁	X ₂	MB	X	MB	X	MB	W-10	UN-3	UN-1
Acetone : ::::::::::::::::::::::::::::::::::	er marinaka ak	rates a a gara		resultá	er enigh.	Appending to	geren vin	gritti debaya	New gradien	43.15
Benzene								1		
Bromodichloromethene	3								ari iri bajiya	A STATE OF
8romoform			1			1				
Bromomethane			e la la agrica	Den Se			Paragoria isto		1	10.11
2-Butanone										
Carbon Disuflide		87 1880 W J 17				Property of			trivil even a princi	34
Carbon Tetrachioride										
Chlorobenzene	371 3800,750	188288.000896.74851n			40,000,160,00	\$ 000 miles	(14. N. 14. X. V. V. V. V. V. V. V. V. V. V. V. V. V.	St. 18 18 18 18 18 18 18 18 18 18 18 18 18	1987 ISSUE STEAM	તુક્કું કેકાંબ લા કાઉ
Chloroethane										
Chloroform				18 C 18 V C	1866 6.886.90	769	112 114 11 11		\$100 mm \$100 mm	18 Sept. 19
Chloromethane]	1		1				
Dibromochloromethane **		7			£ 4-11 11 11 11 11 11 11 11 11 11 11 11 11		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	S. 13.14.16.16.17	980 J. B. St. A.	
1,2-Dichlorobenzene										
1,3-Dichlorobenzene	3-1-35783783	A STATE OF COME		2727 1000808	3873 St. 257	1		(1) (4) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1		
1,4-Dichlorobenzene										
1,1-Dichloroethane	.0610	.0e0G		26.00	9443.544.204	1 34 35 1 12 55 C	100000000000000000000000000000000000000	11 6 K 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	F 1 10 33 \$27.50	
1,2-Dichloroethene		.0048J								
1,1-Dichioroethene	.0240 ※	,0250	. 1. 2. 6. 7. 3. 7. 7.		333938986	\$2.1550000.005.900	10000000	A. 14 May 100		Section 1997
Trans-1,2-Dichloroethene						1				
1,2-Dichloropropene	10 (10 <u>200</u> 1)	Side March	11.00	100 000000	38 - \$18 mil. 6 mil		3 48 3 7 7 8 8	ng nilan sining i ji 8.	V 11 V V V	
CIS-1,3-Dichloropropene					1	1		1		
Trans-1,3-Dichloropropens		208 Jun 1867 year							†	
Ethyl Benzene					1	1				
2-Hazanone	N 100 00 00 00 00 00 00 00 00 00 00 00 00	378873877			7 Y. W. S. C. S. C.			\$100 minutes		
Methylene Chloride						1	† · · · · · · · · · · · · · · · · · · ·	1	 	<u> </u>
4-Methyl-2-Pentanone	V		10 Maria 1860		300 × 4000	\$0.000 (100.00)	1	and Seminar	Value 1	2 %
Styrene								1		
1,1,2,2-Tetrachiorosthene	46.00	# CO.			200000000000000000000000000000000000000	50-530-530-530-50-50-50-50-50-50-50-50-50-50-50-50-50	35300000000000000000000000000000000000	10 10 10 W 10 10 10 10 10 10 10 10 10 10 10 10 10	A Property Co.	192 V 1974
Tetrachioroethene					4.		<u> </u>			
Taluene	* *****			100	36.00				900 D 2000	0.00123
1,1,1-Trichloroethane					,				<u> </u>	
1,1,2-Trichloroethene	200 8000 0000	25.00	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2000	2 900 000	20 ty 10 10 11 15	(1998	Programme.	14.00 G. 16 30.00	3 M. 44. 19. 19. 19. 19
Trichloroethene						1		1	1	0.00061
Vinyl Acetate	1000				***	17,000		***	\$50 W **	A CONTRACTOR
Vinyl Chloride						1		1		1
Total Xylenes		## J.3	1		8 8 8 8 8 8 8	1	1.2.00			***
Total-1,2-Dichloroethylene						1	1	 		<u> </u>
1,1-Dichloroethylene		1000 PM 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	- 14 × 15 × 15	2440	40 Ch 100 1 100	1 3 3 3 4 5 5 6 F	3 1 March 1966	8 . S. 18 . W.	ACC 2 9 39	1.000 100 150
NO VOLATILES DETECTED	2.5 0.000			1	1.0 0000.0000.000.000.000.000.000	1		1	1	<u> </u>

TDEC WELL MONITORING - ANALYSIS OF RESULTS (All results in milligrams/liter) QUARTERLY/BI-ANNUAL MONITORING PROGRAM - KENNON SITE

USEPA METHOD 8240	2ND QTR/1983 (cont)	3RD QTR/1993 (8-	4-83)	4TH QTR / 1993	(10 -26-8 3)				
OR EPA HSL VOLATILES	Х	MB	X	MB	W10	W25	DB8	S87	Х	MB
Acetone (Schools Schools dimension in	ta selesa		de de la de	0.00661	0.017J	0.0066J	0.0072J	0.0130		
Benzene			1	1				· · · · · · · · · · · · · · · · · · ·		
8romodichloromethane	1984/8331 A. HARAGA	310 1000 F-10-11-		ACC 15 Copyed of the		erigi Paga sa sa	and wells.	5.2.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	in a literation	
Bromoform										
Bromomethane	338.388		36 81 848 11 8		A Alter		1 ::4::	1 1 1		
2-Butanone										
Cartion Disuffide:		40000	1800 in 1900 i	Mary Street		5966 1871 113.3.3.3	0.0014J			9 11 8 3
Carbon Tetrachloride			1							
Chlorobenzene		6 ::::::::::::::::::::::::::::::::::::				Solver and the second	X		May usur	્રાજ્યાં જેવા લાક છ
Chloroethana										
Chloroform		200				SVER KILL VIĞÜLE	10. of 10. W.	5.0000	1000 1000 1000	1987 : 1985 Jan - 19
Chloromethana				I				I	I	
Dibromochloromethene		***		1911, 917, 97, 98, 1	33.65.67		* (5. (8. (8.)*)		\$ Y	A MAN DOWN
1,2-Dichlorobenzene			1							
t,3-Dichlorobenzene	70.200		300/1400 CO				A (1000) WAGE	us ibércike tvá	geri, ng jiraning r	State State Control
1,4-Dichlorobenzene										
.1-Dichloroethene	\$\$1980.00 · v4:		\$17 Ox. 1 300	der Sede Collie.		Tribacione		0.2	2.3 (4.3)	, 1965 ·
1,2-Dichloroethene								0.051		
1,1-Dichloroethene				: / # @#\$####			300000	≹higa tayrefigh	and the second of the second of	j 🏎 18, e
Trans-1,2-Dichloroethene						1		0.046		
1,2-Dichloropropene				***			*			KALES BEE
CIS-1,3-Dichloropropene										
Trans-1,3-Olchioropropene		388 (388)			S	and the first of the first	30 T 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Water that		
Ethyl Benzene										
2-Hecenone	160 (2013)		9.000.000			rialisere de de		∅ , iiii ya esa 2a	Arx to the	
Mathylene Chloride					11				0.0014J	
4-Methyl-2-Pentanone		****			***************************************	* 333.00	· · · · · · · · · · · · · · · · · · ·			
Styrene			H							
1,1,2,2-Tetrachioroethene	20.886.890			30 (100,000)	100000000000000000000000000000000000000	#16ggate; Consequen	34	*	₩9250000V.	
Tetrachioroethene			<u>ii </u>		<u> </u>			I		
Toluene	*****	46.2		100 to 100		0.04	- 1000 Marie 1964 Marie 1964 Marie 1964 Marie 1964 Marie 1964 Marie 1964 Marie 1964 Marie 1964 Marie 1964 Marie		are the Salaria	Same Garage
1,1,1-Trichloroethene			<u> </u>		1					
1,1,2-Trichloroethene				***	***	******	***	89 × 100 × 80		in a second of
Frichioroethene					i					
/inyl Acetale		2.30		****			300 CO	3	330 N. 1966	19 9 8 4 A
/Inyl Chloride					<u> </u>					
Total Xylenes				3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	******		Section (Section)	No. of the St.	14.44 ·	36 - 36-56g x 3
Total-1,2-Dichloroethylene								<u> </u>		
,1-Dichloroethylene	100 mm	3 14 14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		personal and with	100 10 0 100 100 100 100 100 100 100 100 100	Service of the service		30 ² 10 3 11 146	ాయిని చేశాన్నికి ఆ	Company of the Company
NO VOLATILES DETECTED		I	1		1	1			1	1

GROUNDWATER MONITORING RESULTS
CITY OF BRENTWOOD MONITORING PROGRAM

WASTE WATER SAMPLING PROGRAM - CITY OF BRENTWOOD KENNON SITE - MANHOLE "X" All Results in Milligrams per Liter

	BASELINE	1ST QTR.	2ND QTR.	3RD QTR.	4TH QTR.	1ST QTR.	2ND QTR.	3RD QTR.	4TH QTR.	1ST QTR.	2ND QTR.	3RD QTR.	3RD QTR.
PARAMETER	11-30-90	3-15-90	6-5-90	8-29-90	11-30-90	4-9 -91	6-21-91	10-25-91	12-18-91	3-16-92	6-16-92	9-16-92 "X ;	9-16-92 "X =
Ammonia Nitrogen Dist.	0.14	500000	i					65 LE	.00019	4 4 1 1	Segral,	23 A S A S A S A S A S A S A S A S A S A	
BO0	<5							1	<.003				
Hexavalent Chromium	<0.01	1 To 1 1 1 1			1		1	1,100	1	74 - F 2.1	4 - 4 -	23.5	
COD	18		<u> </u>	<u> </u>				<u> </u>	1				
T. Cyanide	<0.01	3743113160	distributes ut			grif, hans ha	The second second	- 60	1 9 6	ese, est	883)		
Oil & Grease	<2					<u> </u>	····	1			 		
TSS	4		19 7 G 1 T 1 T	1		11 441 4 4 4			004		1.19		
Cadmium	<0.005		 	1		 		!	 				
Chromium	<0.02	71 TAKE	24 Jan 12 E		s. 0 7 7	A. Braham	10 10 11 11		10 10 10 10 10 10 10 10 10 10 10 10 10 1	Dzmilannik	\$ 1540		
Copper	<0.01							<u> </u>	.005				
Leeds transplated and the same	<0.1	W. 48 48 48 18	Bellengu	2.100 miles 2.1666	Bang-Photosel	11 25 18 32 25 ¹³ (5)	fadigi (1997)		028	Agr - 251.8%	200 million	y Ziani njen.	
Nickel	<0.02								024				
Silver	<0.01			10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	igan angsarij	sogi ga lög tija. 11	agrille daleren illin	nis Leggeria de	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Transport of the second	480	14.4 (22.2)	
Zinc	0.04			 					.036				
Arsenic	0.004		19 48 July 1	29 HAT	Marker Children	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	9011802042	1.00 (2.00 (1.00 (F 1 0 0 2 4 4 4 6 2 1 0 5 1	Walter Ja	16.0	19,232.754.2550	4.1 9 1
Selenium	<0.02		 						1		<u> </u>	 	
Mercury	< 0.0002	19 9 1 5 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			J. P. Jaka	1. (2.1)	3 10 4 7 C	100,500,000	1 1000	94.49	XX		
Priority Poll, VOC			<u> </u>	<u> </u>		1					<u> </u>		
Dichlorobromomethane	ja valation	(3) (3) (4) (4)	Yakan 18 1744	0.0022	egra o i dare	6 11 St 4227 - 152			10 - 11124 3	3-1-1-1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	· · · · · · · · · · · · · · · · · · ·
Chloroethane	0.013	0.0177	0.005		0.017			.0038J	1		 		
1.1-Dichloroethane	0.050	0.0531	0.0369	0.0818	0.081	0.016	0.047	0.079	0.029	11.11 × 21	0.025	0.061	0.06
1.2-Dichloroethane		0.0106	0.007	0.0095			0058J	.0873			† 	l	0048J
Tetrachioroethylene	i Hi i				3 P 11 11 11		-	1.44	<u> </u>	Maria de la			1
1.1,1-Trichloroethane	0.023	0.0216	0.0045	0.0043	0.012	0.011	.0079J		.0052J	.0035J	.0032J	1	
Benzene			tiggs Persent angles.	0,0035	Service de	M2110		and grade the	1 1 mily 25, 3	V . U 17 B			
Methylene Chloride		0.0128		1									
Toluene	aviti stvete			Carlotte Confe	0.0073	Treaty in a	A Programme	0.0013	1 14.74	3 1	o 0.01		
1.2-Dichloroethylene	0.056	0.0606	0.0259	0.0113	0.09	0.14	-				1	T	
Trichloroethylene	Q1- 0 m ² 7	40 880 PU.S.	3.28.285	a di Balaji	148 144 14 <u>2</u>	20 30 10 10 10 10 10 10 10 10 10 10 10 10 10	1.00		1 4 3 5 6 7	Service :	334	1	
Vinyl Chloride		l	1	1	0.018		ì	1	1	1	T	1	[
1.1-Dichloroethylene	gwith Degrada	Designation of the				100 A 400 100 100 100 100 100 100 100 100 100	1.1411	Partie Carl	1,400,800	\$6 - 1 - 11 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	*		
Ethylbenzene			1	<u> </u>		1	<u> </u>	1	1	1	1	1	
Dichlorodiflouromethene			3 3 2 3 3 3				3.34 11399	198	30 May 18 May 1	*	18		
1,2-Dichloroethene			1	1			0.036	0.034	1	.0065J	0.016	0.024	0.025
f.1-Dichloroethene	*			1000		100000000000000000000000000000000000000	62.40.00.000	1. M. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	36 D 308 808	% - ac. 1 ∘	%	1, 2, 24	
Trichloroethene			2	1	31 101 1 1011 1		22, 024 2440 11404		0029J		1	1	
Acetone	Jag 11 s y 1 lik	3 . 44.743	For the particular of the second		9.269 A758 at	100 Comments	900 CO 100 CO	20 8 8 4 6 8 F F	A 10000000	Acces 1	₩	1	0.70

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WASTE WATER SAMPLING PROGRAM - CITY OF BRENTWOOD KENNON SITE - MANHOLE "X" All Results in Milligrams per Liter

	4TH QTR.	1ST QTR.	2ND QTR.	3RD QTR.	4TH QTR.	1ST QTR.	2ND QTR.	3RD QTR.	4TH QTR.	IST QTR.	2ND QTR.	3RD QTR.	4TH QTR.
PARAMETER	12-29-92	4-6-93	5-6-93	8-4-93	10-26-93			j					
Ammonia Nitrogen Dist.	PART 1	127 1 1 1 1 1 1 1 1 1 1	1.5	1		10 to 10 miles			19 40 40 40	1 1 10		41 5 75 5	
BOD				1								1	
Hexavalent Chromium				1	1	S							
COD					1	1					1		
T. Cyanide				ler e e e		The Artist	**************************************		1.48		121	5.1	
Oil & Grease		<u> </u>			0.0099								
TSS		100	Wallan		0.03	V 100 (100 (100 (100 (100 (100 (100 (100							
Cadmium		i		<u> </u>									
Chromium		· · · · · · · · · · · · · · · · · · ·		1	1000	10 July 1881 18	- William		e i levelië	M. C. Barre			
Copper			1							Ì			
Lead organization and a second	1.18834, 35, 38	14,714,000	- 350 Option 100 V	raja kiri kirji s	alaile de la	-8% 5. #100	ejstašeta _{i, i}	1. S. S.	v kej sir kel i i i.i		grafi ve grea i e	超激 超級	
Nickel				1									
Silver	4844 PART			1.24 (1.44)	National Part		din nasa in	14 L 14	uğuğun.	Signer of Superiors	PRODUCT A F	na againg raffa	
Zinc			1		0.034					1			
Arsenic	gigara yang d	34, 14384 A.		13,470,444,61	2,15 tra 12, 15	- 10 March 1985	participant in all		1 A 1 A 1 A 1 A 1 A 1 A 1 A 1 A 1 A 1 A	47 (2.24.55)	grand and	13	
Selenium				1									
Mercury	il jiridii daga		december			MARIN PARTY	97 mm 5 m 48 m	2. 4 to 2.	r System in the	jasa er si	7	1	
Priority Poll, VOC			1		1	1	1						
Dichlorobromomethane			384.000	Life- Facilitie	nii me ni		yris, sittair -	7 ag	ja turbi is fiys	File Section	4.4		
Chloroethane]		1			<u> </u>	1	T	1		Ţ .	
1.1-Dichioroethane	itélije ve		h	erin e			The Eastern Confe		10. 1	ta ja lijeti			
1.2-Dichloroethane				1	1							1	
Tetrachioroethylene	State of the State	A-14:50:56	.X1518.541.557		- XX	Harry Control (1995)	ast. Fr.		unioni s 🐒	1 A 2 A 3 A 3 A			
1.1,1-Trichloroethane	1				<u> </u>								
Benzene	- <u>20,000</u> 00000000000000000000000000000000	88.00 F 199. 549.	ar arman		seed in a real of the	1284	as to the same						
Methylene Chloride			·		0.0014J		1						
Toluene	electric territories	adega Namada 1994		gwi fillinkiru gwik		1374.00000000000	Oliver Hiller	45 44 87	Nediğerlerbiye		293		
1.2-Dichloroethylene			1	T							Ì		
Trichioroethylene	48845	160 BB0 080	S 0.00			A C 48 A 18 3 A	4800 1100	14 14	Ladaetos Jing 88	gister De			
Virryl Chloride							<u> </u>	1			1		
1,1-Dichloroethylene				800 N 1000 100		1000	930.20		3 W 3 S S S S	ngging photos			
Ethylbenzene			1				1						
Dichlorodiflouromethane	8/8/8/18/18				1			100000000000000000000000000000000000000		. yz. 11 100 kgz	1		13.7
1,2-Dichloroethene		-		1	1	1	1	<u> </u>	1	1			
1,1-Dichloroethene	800800000000000000000000000000000000000	200 000 000 000		1000	100.00	1			(coefficiency of the			July 1
Trichloroethene	1			1			1	1	†	 	1		
Acetone		Jan 1944 1945 20	18: 50: 50:	Major and a side	0.0133		44.	†		V-10-1	1	1 1 1 1 1 1	200

GROUNDWATER MONITORING RESULTS EVACUATION MONITORING PROGRAM

WASTE WATER SAMPLING PROGRAM - CITY OF BRENTWOOD KENNON SITE - EXCAVATION SAMPLES All Results in Milligrams per Liter

	BASELINE	EXCAV.	EXCAV.	EXCAV.	EXCAV.	EXCAV.	EXCAV.	EXCAV.	EXCAV.	EXCAV.
PARAMETER	11-30-90	10-24-90	11-20-90	12-7-90	12-14-90	12-19-90	1-18-91	1-25-91*	1-31-91	4-9-91
Ammonia Nitrogen Dist.	0.14	0.93	3.4	11 11 4 4		·	*:	2		
BOQ	<5	40.0	7.0				9.0			
Hexavalent Chromium	<0.01			e var er i			11114		1 8 1	1.5
COD	18		43.0				43			
T. Cyanide	<0.01			g system		7.2 LE	V	14.6	2 - 1 - 1	1.
Oil & Greese	<2		1.4							
TSS: A PLANT MADE A	******** 4	9.3	12.0				18.0	Q 1 1	+ 5%	-
Cadmium	<0.005	0.011								
Chromium 1999 1990 1991 1995	≪0.02	A GARAGE	afult list	prydition		miliai ka s yony	San San Carlo	- Jacobs-Line	4 20 - 1	91 .
Copper	≪0.01									
Leed - and the Annahing to the	~0.1	Elegania III	5 48 15 8	81.8	an mark	an Makasakin	\$185 Jack 155	esseri la gradocino.	toward National	19 1 1 V
Nickel	<0.02									
Silver	≪0.01	Administration	îş yekteşkir	elette evita		agam jagaran	\$100 \$4 L. P. In	ક ને સહી જેવ	Walter State of the Control of the C	14 · · · · · ·
Zing	0.04	0.053	0.076		1		0.024			
Arsenia 100 mg/mg/mg/mg/mg/mg/mg/mg/mg/mg/mg/mg/mg/m	0.004	35 10 10 00 0	1845 H 185	anga Tuangkan k		18. F. J. F. & B. J. H.	- Linking week to the total	Halland Mary	talle set : Xi-	
Selenium	<0.02	1		[·					
Mercury	<0.0002	ma and so, the	0.45	99413 10111	58 F 10 S 10 S	with the second	1994 July 1	35 36 16	s Tara Ker	
Priority Poll, VOC		<u> </u>		-	<u> </u>					
Dichlorobromomethene	*#W		1 1000	1 1, 14 2.0	4 15 J. N. 181	- Valter - googlassic -	. 100 304 C.A.	100 July 1860 (2000)		
Chloroethane	0.013	0.0034	0.049			0.017			0.011	
1.1-Dichloroethene	0.050	0.042	0.12	0.0053	0.0097	0.061	0.0048	0.28	0.072	.016
1.2-Dichloroethene		0.014	0.11		0.013		0.0047	0.19	0.009	
Tetrachlorosthylene	William Charles	0.0033	0.022	3 0.011 See	0.0075	ja. 14. 443 . lis	% 0.011 and	government of with	0.0036	3
1.1,1-Trichloroethene	0.023	0.0084	0.12	0.039	0.027	0.012	0.03	0.68	0.019	,011
Benzene :		weight and the state of	0.0031	leggi agair.	1:05 1 1	3 (14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Springer Labour 1996	0.019		
Methylene Chloride	1		0.069		0.004		0.0021			
Toluene	1000 1 No. 10	Partie was	0.16	0.017	1 1 1 1 1	0.0073	र्ग्यक्षात्र स्थाप	498-118 (Ca	0.013	1
1.2-Dichloroethylene	0.056		0.19		0.0039	0.09	0.0042		0.039	.014
Trichloroethylene	1863 per 200 (co.	Kalifornia (m. 1811)	0.0077	18818 (1. har	1 a 1 a 1 a 2 a 3 a 3 a 3	400 8 1040 88 40	Santago de Comercia de Santago de Santago de Santago de Santago de Santago de Santago de Santago de Santago de	0.17%	Section 1995	w.
Virnyi Chloride			0.024	1	†	0.018	 	0.0091	0.0048	<u> </u>
1.1-Dichlarosthylens	Mary Mary Comment	a constant and a second	0.00384%	91.000 (100.00)	1900 Apr. 1100 000	198 10 25 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ALCOHOLD CO.	0.025	4000	
Ethylbenzene	<u> </u>	1	1	1		1		0.026	1	1
Dichiorodiflouromethene ***	100	Shiping in the reg	gates in a subs	W 67% AL.	ger or ger all a ger	an salah di ca	8. * * * * * * * * * * * * * * * * * * *	*******	1,000,000,000	*Car grow
1,2-Dichloroethene		1		1		1		1		<u> </u>
1,1-Dichlorosthene	426.00	88.18101.08.	\$18 J. 45 \$	2963 3	the to Sidney (Side	- 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 190	\$190 ka \$40 ka ka ka ka ka ka ka ka ka ka ka ka ka	5 00 30 B. C.	85 1 1181 6	1.7.
Trichioroethene				1						

^{* -} construction mishep caused small split directly into sampling intains

WASTE WATER SAMPLING PROGRAM - CITY OF BRENTWOOD KENNON SITE - EXCAVATION SAMPLES All Results in Milligrams per Liter

	EXCAV.	EXCAV.	EXCAV.	EXCAV.	EXCAV.	EXCAV.	EXCAV.	EXCAV.
PARAMETER	4-19-91	4-29-91	5-3-91	5-9-91	5-16-91	8-23-91	8-21-91	10-25-91
Ammonia Nitrogen Dist.							· · · · · · · · · · · · · · · · · · ·	
800								
Hexavalent Chromium	and the	_						
COD	49.5		•					
T. Cyanide	91 8 LL 1 1 1 L							
Oil & Grease				1				
TSS	58.7							
Cadmium								
Chromium	43,38,30,00	a. 50., 60.	5 July 286 Flor		-			:
Copper								
Leed to the way to be consequently	in market bearing	all the N. S. I.	1 18 2 V	1	*i.,	+ + . :		1451 A 41 -
Nickel	0.03							
Silver of the second se	3 869 HEVAL R. D.	844 (8.45) (A.	sarking digital	4 145 1 1 1 1	-: ·· ··		1 1	1 20
Zinc	0.022							
Arsenio	ું જેવા યુજવાનું		1 17 1 N 3 1 N 3 1 N 3 1 N	1121-121-1-1			i . 21	1881 F
Selenium	<u> </u>							<u> </u>
Mercury	Aria Alanda	aja a enjatur		F 7 1 8F 17	7 7 7 7			8 KO 44 F
Priority Poll. VOC	1							
Dichlorobromomethene	- Preference 2017	1.15 To 2 To 3	. 00000 (1,500)	1	18 18 L		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Used the
Chloroethane								.0038J
1.1-Dichloroethane	.003	.0049	.0043	.0076	.019	.008		
1.2-Dichloroethane					··· ··· ··		,0025J	.0067J
Tetrachioroethylene	-0.360 (64 m) s	38900 AND D		1714 M 1 M 1 M 1 M 1	M. Walington	a Warner Co.	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	anser : .
1.1,1-Trichloroethane	.0038	.0037	.0046	.0036	.010	.0054		1
Benzene	2000 8000	15, h (2,15)	and draging the second	9.55	3 24 5 3 5 5 7	Lead to the second	3.4	1 gr 2 2 2
Methylene Chloride		1						
Toluene	Serial Series	. Sales Nacio	4-4\$1.23-01 ₁		1.1	.003	1.0	.0013J
1.2-Dichloroethylene	.0022	.0032	.0048	.0066	,017	.0054		1
Trichloroethylene	3000	\$, 50° (50° 144°)	श्चाक्ष समझ असे क	alian en	\$2.5		1 741	dag student
Vinyl Chloride				1]			
1.1-Dichlorosthylens	2000000	Patrial Burgers	State Season	1111, 3000 - 10,239,0003	grading gradination	المنجول والمحرور أشا	en en en en en en	sweet transfer
Ethylbenzene								
Olchiorodifiouromethene	88 183 888 189 8 °	gradian disposar	K 1982 (1886)	જેલ હોઈસ્ટ્રિંગિસ્	** **********************************	age of Magain	asymbol design	Resident Tud III ee e
1,2-Dichloroethene -	l						,0036J	
1,1-Dichloroethene	\$100 KK 100		1819-1819 (189 ₃) +	11 94 × 3110	16.00 mm 10.14	0.00 1.25	00.0062J	
Trichioroethene					1	 		1

SITE SECURITY PROGRAM

SITE SECURITY PROGRAM Kennon Site - Brentwood, Tennessee

Site security is described in two sections of the following report; Site Security - Source Control/Remediation (during the source control and remediation activities), and; Site Security - Soils Management/Bioremediation Activities (during the long-term soils management and bioremediation process).

Site Security - Source Control/Remediation Activities

The following security devices where utilized in conjunction with site security during the source control/remediation activities:

- An eight (8) foot high chain link fence was installed completely around the site as one of the first security activities. It has remained intact since that time, except for renovation and improvement to facilitate installation of gates, repair, etc.
- High density security lights, mounted on five telephone poles throughout the site, were installed to
 provide additional lighting for security purposes at night and at times when lighting was less than
 desired.
- The site access road was moved from exiting from the south end of the Kennon Farm to exit in the middle of the Kennon Farm at the existing railroad crossing. This move was accomplished to comply with a request from the City of Brentwood, but did allow additional site security since the road passed directly in front of the farm manager's home. Additional gate and locks were installed across the roadway directly in front of the farm managers home.
- A uniformed guard service was employed during all of the source control/remediation activities, with the security guard being stationed at the front gate of the site in front of the farm managers home. Traffic was limited to those contractors and deliveries necessary to site operations. Access was gained through radio communications with the site operations trailer. At nights and on weekends during the source control/remediation stage, (when activity was conducted on the site), a security guard was stationed in the site operation trailer to provide additional security.
- The electrical systems to the site, the floats that control the pumping mechanism in the lift station, and two underground storage tanks are monitored electronically by an alarm system with an automatic telephone dialer. In this twenty-four hour monitoring system, should the electricity fail or the censors indicate that the waste water control pumping system is not working accurately, then the automatic telephone dialer calls the offices of Mosely & Associates, Inc. every four minutes until corrective action is taken on the site.

Site Security - Soils Management/Bioremediation Activities:

The following activities will take place throughout the soils management/bioremediation phase of the site remediation program:

- The eight (8) foot high chain link fence with lock-secured gates will remain intact around the site until the site is de-listed by the Tennessee Department of Environment and Conservation.
- The high density security lights, mounted on the five telephone poles throughout the site, will remain
 active during dark hours until such time as the Tennessee Department of Environment and
 Conservation agrees that they may be disconnected.

- The site access road will remain in the location utilized during the source control activities, through the middle of the farm. It will continue to exit directly in front of the farm managers home, to provide additional security for the site. Dual locks will remain on the farm gate in front of the farm managers home, to allow entrance to the site access road to the farm manager, Mosely & Associates, Inc. personnel, or the Tennessee Department of Environment and Conservation
- The site electrical/pumping system alarm mechanism will continue to operate until the site is de-listed by the Tennessee Department of Environment and Conservation. Should the electricity be interrupted at the site, or should the sensors located in the lift station, electrical panels or underground storage tanks detect that the water flow control program is not working satisfactorily, the office of Mosely & Associates, Inc, in Nashville, Tennessee will be called by the automatic telephone calling system every four minutes until personnel arrive at the site to correct the situation. It should be emphasized that there is at least four to six weeks of groundwater holding capacity on the site Itself, even in times of heavy rain, in the event that the system fails to function properly. Temporary situations such as electrical outages during storms, etc. are usually self-corrected within a matter of minutes.

Emergency Personnel Listing:

The following personnel have been designated and properly trained for emergency purposes to accomplish any emergency actions that may occur on the site itself:

INITIAL CONTACT FOR ALL EMERGENCIES AND OVERALL RESPONSIBILITY:	DAY TIME TELEPHONE	EMERGENCY TELEPHONE
Ralph Mosely, President Mosely & Associates, Inc.	615-399-1016	615-664-1813
David Johnson, Sr. Consultant Mosely & Associates, Inc.	615-399-1016	615-664-1813
ELECTRICAL AND MECHANICAL PROBLEMS AND PUMPING SYSTEM:		
Roy Gregory/John Ray Genesco Inc.	615-367-8222	615-367-7701
TENNESSEE OF DEPARTMENT ENVIRONMENT AND CONSERVATION - NASHVILLE FIELD OFFICE:		
Brenda Apple	615-741-5940	1-800-251-3479

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TF INESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

OFFICE CORRESPONDENCE

DATE

12-18-92

TO:

DSF, NFO Staff

FROM:

Brenda Apple EA

SUBJECT:

Public Drinking Water Systems in Middle Tennessee

Please find attached two lists. One is of community systems and one is of non-community systems. Both lists should be reviewed for PA/SI purposes. The main difference between the two systems is the number of people they serve. The reference for this source of information is "Tennessee Division of Water Supply, Public Water System Directory, December 15, 1992".

You will still need to contact the Ground Water section in the Division of Water Supply for private well information. Following is an explanation of some of the codes:

- 1. 01, 02...indicates the systems source of water (even if they buy water from someone else.)
- 2. The latitude, longitude and river mile is listed when appropriate and available.
- 3. The column with service connections can be treated as number of residences in service area and then is multiplied by county household factors to get population column.

FROM DATE

CH-0920

4. Source Codes are: S=surface water

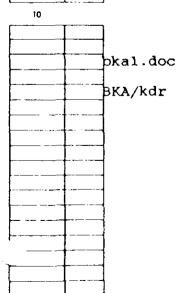
G=ground water (well or spring)

FROM

TO

DATE

P=purchased surface water W=purchased ground water



	MANCHEDIER WATER DEPARTMENT 200 W. Fort Street Manchester, IN 37385		Р		
	01 DUCK RIVER UC (PWSID # 000)	0821)		RIVER	MILE
@0879	SHADY GROVE MHP Route 8. Sikie Highway West Manuhester. FN 37355	(615) 728-3169	G	110	 4 Ū
	O1 WELL	0332658	08602 08	RIVER	MILE
00880	STACEY ANN'S MHP	1 7 1 7 1	G	108	47
	01 WELL 1 02 WELL 1	LATITUDE LO 0352604 0352606	0860551	RIVER	MILE
00715	TULLAHOMA BOARD OF UTILITIES P.O. BOX 788	(615) 455-4515	р	21367	7170
	Tullahoma. IN 37388 Ol DUCK RIVER U.C. (PWSID # 0006	08 21)		RIVER	MILE
	COUNTY NAME	TELEPHO <u>NE</u>	SRCE CODE	POPUL,	SERVICE CONN.
	CUMBERLAND UTILITY DISTRICT 6020 PANAMA DR HERMITAGE, IN 37076	(615) 883-8505	S	23220	9000
`	01 CUMBERLAND R.	LATITUDE LC 0361228	08638 30	207.	
	HARPETH VALLEY U D P.O. BOX 319 Nashville, TN 37221	(615) 352-7076			8095
	01 CUMBEFLAND RIVE		0865515	172.	
	LAKEWOOD WATER DEPARTMENT 3401 Hadley Avenue Old Hickory, TN 37138		p		750
	01 OLD HICKORY U D (PWSID # 0000			PIVER	
	MADISON SUBURBAN UD P.O. Box 175 Madison, TN 37116	(615) 868-3201			
	01 CUMBERLAND RIVE	LATITUDE LC 0361427	0864245	200.	3
	NASHVILLE WATER DEPT 1600 Second Avenue, North Nashville, TN 37201	(615) 259 6425	\$	69000 0	130526
	01 CUMBERLAND PL#1 02 CUMBERLAND PL#2	LATITUDE LO 0340948 0361140	0863925	206.	
000527	OLD HICKORY UBILITY DISTRICT 1050 Bonelson Avenue Old Hickory. IN 17138				1450

				_		<u> </u>	
_	in in the second of the secon						
00193	SCHALTE UTILITY DISTA P.J. HOX 228 Guarta, IN 38583	ict.	(615) 816	9101	р		
63	O. SPARTA	(PWSID # 6000652)				ଖ ୍ ଧ୍ୟର	#
13526	WINNER UTILITY DISTR F.T. HIX 56 Insets, IN 18583				P		
	OL GRARTA, DITY OF					∾ (ं ∀ = प्र	₩ \$5.2
10916	PRICES CWITCH WATER C P.O. Box 144 Sparta, TN 38583	OMPANY	(615) 935	- 2618	P	186	<u> 5</u> 7
	01 BON DE CROFT UD	(PWSID # 0000653))			RIVER	MILE
000569	QUBECK WALLING U D #1 Sparta Shopping Cente Sparta, IN 38583		(615) 836	-2147	р	2363	850
	01 SPARTA WATER	(PWSID # 0000652)				RIVER	MICE
000852	QUBECK WALLING U D #2 Sparta Shopping Cente Sparta, IN 38583		(615) 836	-2147	р	487	175
	O1 DEWHITE U.D.					RIVER	MILE
-7. -10 k 52	SPARTA WATER SYSTEM P.O. BOX 468 Sparta, IN 38583		(615) 738			8259	2971
	01 CALFXILLER RIVE		0355555	(KSTITUDE 2852745	016.	. 1
	ON COUNTY NAME		TELEPHI	CNE	SRCE CODE	POPUL.	SERVITE CONN.
)00000 69	ERENTWOOD WATER DEPT. P.O. BOX 788 Brentwood, IN 37024				P	14593	
	01 HARPETH VALLEY 02 METRO-WATER	(PWSID # 0000286) (PWSID # 0000494)				RIVFR	MILE
::- ::::00::36	FAIRVIEW WATER SYSTEM P.O. Pox 69 City Hall Fairview, IN 37062				\$	4326	1502
	01 HCRN TAVERN SPG 02 HARRETH VALLEY 03 MITCHE SCH WELL		0355935	C		PIVER	MILE
100,000 to	FEANKEIN WATER DEPT 358 Lewithurg Pike Frenklin, IN 37064		 (615) 794		\$	25410	३ ००
	e: HAMPETH RIVER 03 HAMPETH VALVEY		0355433		G1110DE 355115	Biv⊬k (40,	

4/27/93

Federally Listed Species by State

<u>TENNESSEE</u>

(E=Endangered; T=Threatened; CH=Critical Habitat determined)

<u>Mammals</u>	General Distribution
Bat, gray (<u>Myotis grisescens</u>) - E Bat, Indiana (<u>Myotis sodalis</u>) - E, CH Cougar, eastern (<u>Felis concolor couquar</u>) - E Panther, Florida (<u>Felis concolor coryi</u>) - E Squirrel, Carolina northern flying	Entire State Central, East North, East Southwest
(<u>Glaucomys sabrinus coloratus</u>) - E	Eastern mountains (Carter and Sevier Counties)
Birds	
Eagle, bald (<u>Haliaeetus leucocephalus</u>) - E Falcon, American peregrine	Entire State
(<u>Falco peregrinus anatum</u>) - E	East, Central, Extreme Northwest
Falcon, Arctic peregrine (<u>Falco peregrinus tundrius</u>) - T	Entire State (mostly West)
Tern, least (<u>Sterna antillarum</u>) interior population - E	Mississippi River
Warbler, Bachman's (<u>Vermivora bachmanii</u>) - E Warbler, Kirtland's (<u>Dendroica kirtlandii</u>) - E Woodpecker, ivory-billed	West Extreme Northeast
(Campephilus principalis) - E Woodpecker, red-cockaded	Extreme West
(<u>Picoides</u> [<u>*Dendrocopos</u>] <u>borealis</u>) - E	East
<u>Fishes</u>	
Chub, slender (<u>Hybopsis cahni</u>) - T,CH	Hancock, Claiborne, Grainger Counties
Chub, spotfin (<u>Hybopsis</u> <u>monacha</u>) - T,CH	Hawkins, Sullivan, Morgan, Fentress, and Cumberland
Dace, blackside (<u>Phoxinus</u> <u>cumberlandensis</u>) - T	Counties Upper Cumberland River System (Scott, Campbell, and Claiborne Counties)
Darter, amber (<u>Percina</u> <u>antesella</u>) - E,CH	Conasauga R., Polk County

TENNESSEE (Cont'd)

State Lists 4/27/93

General Distribution

Mussel, Appalachian monkeyface pearly (Quadrula sparsa) - E

Mussel, birdwing pearly (Conradilla caelata) - E

Mussel, Cumberland bean pearly (Villosa trabilis) - E

Mussel, Cumberland monkeyface pearly (Quadrula intermedia) - E

Mussel, Cumberland pigtoe (Pleurobema gibberum) - E

Mussel, dromedary pearly (<u>Dromus dromas</u>) - E

Mussel, fine-rayed pigtoe pearly (Fusconaia cuneolus) - E

Mussel, green-blossom pearly (Epioblasma [=Dysnomia] torulosa gubernaculum) - E

Mussel, little-wing pearly (Pegias fabula) - E

Mussel, orange-footed pearly (Plethobasus cooperianus) - E

Mussel, pale lilliput pearly
Toxolasma [= Carunculina] cylindrella) - E

Mussel, pink mucket pearly (<u>Lampsilis orbiculata</u>) - E

Mussel, rough pigtoe pearly (Pleurobema plenum) - E

Mussel, shiny pigtoe pearly (Fusconaia edgariana) - E

Mussel, tan riffle shell
(Epioblasma [=Dysnomia] walkeri) - E

Powell River

Powell, Clinch, Elk and Duck Rivers

Big S. Fork of Cumberland River

Elk, Powell and Duck Rivers

Caney Fork River System

Powell, Clinch, Cumberland and Tennessee Rivers

Powell, Clinch, Elk, Sequatchie, N. Fork Holston and Little Rivers

Clinch River

Cave Creek

Tennessee and Cumberland Rivers

Historic; no recent TN records

Tennessee, Clinch and Cumberland Rivers

Clinch, Cumberland and Tennessee Rivers

Powell, Clinch and Elk Rivers

Historic; no recent TN records

TENNESSEE (Cont'd)

State Lists 4/27/93

<u>Isotria medeoloides</u> (small whorled pogonia) - E

<u>Phyllitis scolopendrium</u> var. <u>Americana</u>
(American Hart's Tongue Fern) - T

<u>Pityopsis ruthii</u> (Ruth's golden aster) - E

<u>Scutellaria montana</u> (large-flowered skullcap) - E

Solidago spithamaea (Blue Ridge goldenrod) - T

<u>Spiraea virginiana</u> - T (Virginia spiraea) General Distribution

Hamilton County

Marion County Polk County

Hamilton and Marion Counties

Carter County

Nolichucky River, Unicol County; Abrams Creek and Little River, Blount County; Cane Creek, Van Buren County; White Oak Creek, Scott County; Clifty Creek in Roane County; Daddy's Creek in Cumberland County; and Clear Fork in Morgan and Scott Counties

<u>Xyris Tennesseensis</u> (Tennessee yellow-eyed grass) - E

Lewis County

ENVIRONMENTAL CORPOR	TELECON NOTE	
CONTROL NO. MK63AP	DATE: 6/13/94	TIME: 1130
DISTRIBUTION:		<u> </u>
The Kennon Site - Brentwood, V	Villiamson County, Tennessee	
BETWEEN: James Brian	OF: Tennessee Wildlife Resources Agency	PHONE: (615) 896-3046
AND: Teresa Sawyer, Halliburto	n NUS Corporation	
DISCUSSION:		
snoke with Mr. Brian concerning	g the Little Harpeth River. He said that it is no	of commercially fished, but that it
	hal fishing. He also stated that Clovercroft La	

Kennon Site

1

LATITUDE 35:57:22 LONGITUDE 86:46:27 1983 POPULATION

KM	0.00400	.400810	.810-1.60	1.60-3.20	3.20-4.80	4.30~6.40	SECTOR TOTALS
S 1	0	0	0	0	0	0	0
S 2	0	0	0	434	0	4147	4581
S 3	0	0	0	0	0	0	Ó
S 4	С	0	0	0	0	0	0
S 5	0	Q	0	0	0	349	349
\$ 6	Q	0	0	0	0	0	0
S 7	0	0	0	0	0	0	0
S 8	0	0	0	0	0	2673	2673
RING TOTA		0	0	434	0	7169	7603

press RETURN to continue

MENU: Geodata Handling Data List procedures

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or a command: HELP, HELP option, BACK, CLEAR, EXIT, TUTOR

GEMS> exit

Type YES to confirm the EXIT command; type NO to restart GEMS GEMS> yes

\$ logout

logged out at 7-JUN-1994 15:25:00.93 HTW Itemized resource charges, for this session, follow:

NODE: VAXTM1

ACCT: 9040

PROJ: GEMS0001 USER: HTW

UIC: [000710,000012] BAUD:

START TIME: 7-JUN-1994 15:23:30.51 FINISH TIME: 7-JUN-1994 15:25:00.93

0.6983

BILLING PERIOD: 940601 WEEKDAY: TUESDAY

TERMINAL PORT: VTA9018

DESCRIPTION OF CHARGE	QUANTITY	EXPENDITUR

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н	A.L.	LHA	KLL	LIE.V	/ 645

300 baud (Seconds) 90 0.0000 CPU TIME (Seconds) 3 0.6983

TOTAL FOR THIS SESSION

** Note: This total reflects the charges for this process only, subprocesses created during this session are accounted for

separately

CLR PAD

R)z

NO CARRIER

HALLIBURTON NUS ENVIRONMENTAL CORPORATION	PROJECT NOTES
TO: FILE: THE KENNON SITE	DATE: JUNE 13, 1994
FROM: TERESA SAWYER, SITE PROJECT MANAGER	COPIES:
SUBJECT: POPULATION	
I called the Chamber of Commerce, and the population of Brentwoo	od is 19,317 persons.

NUS 443A 58 1182

KENNON SITE GENESCO

TND 981473515

SITE SUMMARY

The Kennon Site (Genesco) is located near the junction of Split Log Road and Wilson Pike east of Brentwood in Williamson County, Tennessee.

The site is on the Kennon farm in an area of old phosphate pits where in 1978 General Adhesives, a subsidiary of Genesco, dumped approximately 800 drums of organic solvents, organic fillers, and adhesives. The pits were then filled. The state was informed of this unregistered landfill by Genesco in 1985. Chemicals detected on site at appreciable levels in 1986 sampling were toluene; tetrachloroethylene; 1,1,1 trichloroethylene; 2 Butanone (Methyl ethyl ketone); xylene; hexane; 1,1,1 trichloroethene; acetone; 1,2 dichloroethane; and benzene.

Several private wells are still in use within three miles of the site and ground water contamination was discovered in early 1986. Residents with wells within a one mile radius (a population of approximately 118) were provided with bottled water at their discretion by Genesco until water lines could be run from Brentwood. Brentwood water is supplied by Metro Nashville and Harpeth Valley Utilities. The total population within three miles on groundwater prior to remedial action of running water lines was 410.

RCRA SUMMARY KENNON SITE (GENESCO) TND 981473515

The Kennon Site (Genesco) is a farm with phosphate pits that was used to dump approximately 800 drums of organic solvents, fillers, and adhesives in 1978.

The site was never registered as a landfill and did not have a 35D permit.

TAM/ib

Facility name: Kennon Site (Genesco) TND 981473515
Location:Brentwood, Williamson County, Tennessee
EPA Region:
Person(s) in charge of the facility:Emmett_Kennon
Ralph Mosely, Genesco
Name of Reviewer: Thomas A. Moss Date: 4/30/87
General description of the facility:
(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)
The Kennon Site (Genesco) is a drum disposal site used by General Adhesives,
a subsidiary of Genesco, in 1978 to dispose of approximately 800 drums of
organic solvents, fillers, water based adhesives by dumping them in phosphate
pits and covering the pits at the site. The aquifer of concern is a car-
bonate, fracture-based, solutionally enlarged aquifer. A population of
approx 410 persons were on private wells within 3 miles of the site prior to
the remedial action of water lines being run.
Scores: $S_{M} = (S_{gw} = S_{sw} = S_{sw} = S_{a} = $
S _{FE} = Not Rated
S _{DC} = Not Rated

FIGURE 1 HRS COVER SHEET

		Ground Water Route Work She	e t			
Rating Factor		Assigned Value (Circle One)	Multi-	Score	Max. Score	Ret. (Section)
Observed Releas	se .	0.00	٢	45	45	3.1
		ven a score of 45, proceed to line [4] ven z score of 0, proceed to line [2].				
Route Characters Depth to Aquilte Concern		0 1 2 3	2		£	3.2
Net Precipitation Permeability of Unsaturated Zi	ine	0 1 2 3 0 1 2 3	1		3 3	
Physical State		0 1 2 3	1		3	
		Total Route Characteristics Score			15	
3 Containment		D 1 2 3	1		3	3.3
Waste Charpoteris Toxicity/Persist Hazerbous Wast Guantity	ence	0 3 6 9 12 13 18 0 1 2 3 2 5 6 7 8	1	15 4	18 8	3.4
		Total Waste Onarabteristics Score		19	28	
Tarpets Ground Water U Distance to Nea Well/Population Served	rest	0 1 2 3 0 4 5 8 10 12 15 18 20 24 30 32 35 40	3	9 20	g 40	3.5
		Total Tempets Score		29	49	
	inizibik mairibik		2	4,795	 	
Divide the 👵 🕏	: 67,091	and multiply by 100	Spw=	43.2		

FIGURE 2
GROUND WATER ROUTE WORK SHEET

	•	-	Surface Water Route Work	Sheet			
	Rating Factor Assigned Valu (Circle One)			Mult phe	- L-Score	Max. Score	Ref. (Section)
1	Observed Release		(i) 45	1	0	45	4.1
			a value of 45, proceed to line a value of 0, proceed to line	4. 2			
2	Route Characteristic Facility Slope and Terrain 1-yr. 24-hr. Rainfal	Interveni	_	1	1 2	3	4.2
	Distance to Neare Water Physical State		0 1 (2) 3 e 0 1 (2) 3 0 1 2 (3)	2	4	6 3	
		T	otal Poute Characteristics Sco	ore	10	15	
3	Containment		0 1 2 3	1	3	3	4.3
[Waste Characteristic Toxicity/Persisten Hazardous Waste Quantity		0 3 6 9 12 13 18 0 1 2 3 () 5 6 7	1 7 8 1	15 4	18 8	4.4
		To	otal Waste Characteristics Sco	ore	19	26	
5	Targets Surface Water Use Distance to a Sens Environment Population Served/ to Water Intake Downstream	sltive	0 1 2 3 0 1 2 3 1 2 3 0 4 6 8 10 12 16 18 20 24 30 32 35 40	3 2 1	6 0 0	9 6 40	4.5
			Total Targets Score		6	55	
13	If line is 45, mu If line is 0, mut	ultiply [3]	x & y 5 x & x & x E		3,420	64,350	
	Divide line 📵 by 8	4,350 and	i multiply by 100	S _{sw} =	5.3		

FIGURE 7
SURFACE WATER BOUTE WORK SHEFT

				ute Work S		·		nan Sit	
						TND	981473		
	Rating Factor			ed Value e One)		Multi- plier	Score	Max. Score	Ref. (Section)
	Observed Release		0	45		1		45	5.1
	Date and Location:								
	Sampling Protocol:								
		e S _{a.} = 0. En hen proceed							<u>-</u>
2	Waste Characteristi	cs							5.2
	Reactivity and Incompatibility		0 1 2	3		1		3	
	Toxicity Hazardous Waste Quantity		0 1 2 0 1 2	3 3 4 5	6 7 8	3 1		9 3	
									,- <u>. </u>
		Tota	l Waste Ch	aracteristic	s Score			20	
3	Targets	,							5.3
	Population Within- 4-Mile Radius		0 9 12 21 24 27	15 18		1		30	
	Distance to Sensit	ive		. 3		2		6	
	Land Use		0 1 2	3		1		3	
									;
	-		·						
			Total Ta	rgets Score				39	
4	Multiply 1 x 2	x 3						35,100	
5	Divide line 4 by	35,100 and n	nultiply by	100		Sa=			

FIGURE 9
AIR ROUTE WORK SHEET

_ -

	s	s ²
Groundwater Route Score (S _{gw})	43.2	1866.24
Surface Water Route Score (S _{sw})	5.3	28.09
Air Route Score (Sa)	Not Rated	Not Rated
$s_{gw}^2 + s_{sw}^2 + s_a^2$		1894.33
$\sqrt{s_{gw}^2 + s_{sw}^2 + s_a^2}$		43.5
$\sqrt{s_{gw}^2 + s_{sw}^2 + s_a^2} / 1.73 = s_M =$		25.2

FIGURE 10 WORKSHEET FOR COMPUTING S_M

*

...

		p.		<u> </u>		AIC						Kennan	C:+o	
}		Fire a	and	Ex	2103	sioi	n W	ork	Sne	ee(kennon IND 981		
Rating Factor		A		gne ircle							Multi- alier	Score	Max. Score	Fer. (Section)
1 Containment		1					3				1		3	7.1
2 Waste Characteris	stics													7.2
Direct Evidence		0			3						1		3	
Ignitability		0	1	2	3						1		3	
Reactivity		0	1	2	3						1		3	
Incompatibility		J	1	2	3						1		3	
Hazardous Wasti Quantity	9	0	1	2	3	4	5	6	7	8	1		8	
	То	tal Was	ite	Cha	rac	ter	istic	: s \$	cor	9			20	
3 Targets		·		-	-									7.3
Distance to Near Population	est	0	1	2	3	4	5				1		5	
Distance to Near Building	est	0	1	2	3						1		3	
Distance to Sens	itíve	0	1	2	3						1		3	
Land Use		0	1	2	3						1		3	
Population Within 2-Mile Radius)	0	1	2	3	4	5				1		5	
Buildings Within 2-Mile Radius		0	1	2	3	4	5				1		5	
,						.—.						·		
	<u></u>	Tot	ai T	Targ	ets	So	ore				}		24	·
Multiply 1 x 2] × []	· —											1,440	-
5 Divide line 4 by	/ 1.440 and n	nultiniv	bv	100	<u> </u>					S			<u> </u>	

FIGURE 11 FIRE AND EXPLOSION WORK SHEET

-

NOT RATED Kennon Site Direct Contact Work Sheet TND 981473515 Assigned Value **Mult**_E Max. Ref. Scare Rating Factor (Circle One) piter Score (Section) Observed Incident 0 45 1 45 8.1 If line [1] is 45, proceed to line [4] is 0, proceed to line [2] If line 🗇 2 Accessibility 0 1 2 3 3 8.2 1 3 Containment 1 0 15 15 8.3 Waste Characteristics 5 0 1 2 3 8.4 Toxicity 15 3 Targets 8.5 Population Within a 20 1-Mile Radius 0 1 2 3 12 Distance to a Critical Habitat Total Targets Score 32 is 45, multiply 1 x 4 x 5 6 If line 1 is 0, multiply $2 \times 3 \times 4 \times 5$ 21,600 If line [1] Divide line 6 by 21,600 and multiply by 100 Spc =

FIGURE 12
DIRECT CONTACT WORK SHEET

DOCUMENTATION RECORDS FOR HAZARD RANKING SYSTEM

FACILITY NAME: Kennon Site (Genesco) TND 981473515

FACILITY DESCRIPTION: Phosphate pits on farm filled with dumped liquids and

drums and covered.

LOCATION: Brentwood, Tennessee

DATE SCORED: April 28, 1987

PERSON SCORING: Thomas A. Moss

PRIMARY SOURCE(S) OF INFORMATION (e.g., EPA region, state, FIT, etc.):

State Superfund Files

FACTORS NOT SCORED DUE TO INSUFFICIENT INFORMATION:

Air, Fire and Explosion, Direct Contact

COMMENTS OR QUALIFICATIONS:

Water lines have been run to houses that were on private wells within a one-mile radius of the site.

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

Trans-1,2-dichloroethene; toluene; 1,1,-dichloroethane; and 1,1,1-trichloroethane detected in Hackett Spring and on site monitoring wells by State Superfund sampling (Ref. 1, 2) and are known to be toxic (Ref. 3, 4). Background well (Johnson) showed no contamination (Ref. 1, 2).

Rationale for attributing the contaminants to the facility:

Contamination found in monitoring wells on site, no contamination found in background well (Ref. 1).

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifer(s) of concern:

The aquifer of concern would be the Ordovician limestone formations (Ref. 5, 6) of the Bigby-Cannon Limestone (70-130 ft. thick), Hermitage Formation (50-150 ft. thick), and Carters Limestone (70 ft. thick). The majority of private wells in the area have depths of 150-350 ft. (Ref. 7) and would be completed in the Hermitage Formation or Carters Limestone (Ref. 5, 6) (50-100 ft. thick). See attachment 2A for further discussion of aquifer of concern.

Depth(s) from the ground surface to the highest seasonal level of the saturated zone (water table(s)) of the aquifer of concern:

N/A

Depth from the ground surface to the lowest point of waste disposal/storage:

N/A

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

N/A

Mean annual lake or seasonal evaporation (list months for seasonal):

N/A

Attachment 2A Aquifer of Concern

There are no confining layers present within the Bigby-Cannon Limestone, Hermitage Formation, and Carters Limestone. The Bigby-Cannon Limestone contains facies ranging from a microcrystalline limestone facies to medium- and coarse-grained limestone facies (Ref. 5). The Bigby-Cannon has sinkhole development and deep weathering along vertical fractures (Ref. 6). Numerous springs are present in the area (Ref. 2).

The underlying Hermitage Formation consists of a coquina (shell hash) facies with shale partings, a laminated argillaceous limestone facies, and a limestone with shale partings (Ref. 5). The Carters Limestone underlying the Hermitage consists of an upper and lower limestone member of cryptocrystalline to fine-grained limestone with shale partings separated by a thin bentonite clay (Ref. 5). The Carters weathers to a brown plastic clay with some sinkholes (Ref. 6).

Net precipitation (subtract the above figures):
N/A
Permeability of Unsaturated Zone
Soil type in unsaturated zone:
N/A
Permeability associated with soil type:
N/A
Dhysical State
Physical State
Physical state of substances at time of disposal (or at present time for generated gases):
N/A
* * *
3 CONTAINMENT
Containment
Method(s) of waste or leachate containment evaluated:
N/A
Method with highest score:
N/A
4 WASTE CHARACTERISTICS
Toxicity and Persistence

1,1-dichloroethene and 1,1-dichloroethane detected in pits A and B and monitoring well #8 on site and not detected in background well (Johnson) by State Superfund sampling (Ref. 1, 2, 8).

Compound(s) evaluated:

Compound with highest score:

1,1-dichloroethene has a toxicity rating of 3 (Ref. 4) and a persistence rating of 2 (Ref. 9).

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

800 drums

Basis of estimating and/or computing waste quantity:

Genesco admission of the dumping of approximately 800 55-gallon barrels of waste material containing organic solvents, organic fillers, and water based adhesives at the site by their subsidiary General Adhesives (Ref. 10).

5 TARGETS

Ground Water Use

Use(s) and aquifer(s) of concern within a 3-mile radius of the facility:

Drinking water with no municipal water presently available (Ref. 11, 12). Genesco paid for lines to be run from Brentwood for the area within a one-mile radius of the site that had no municipal water source.

Distance to Nearest Well

Location of nearest well drawing from <u>aquifer of concern</u> or occupied building not served by a public water supply:

Hackett Spring is used as a drinking water supply by the Hacketts (Ref. 13). Hackett house is on east side of Wilson Pike approximately 1000 ft. north of Split Log Road (Ref. 2, 14, 15).

Distance to above well or building:

Hackett Spring is contaminated (Ref. 1), distance would be considered as zero. Actual distance from the pits is approximately 1500 ft. (Ref. 14, 15).

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from <u>aquifer(s)</u> of <u>concern</u> within a 3-mile radius and populations served by each:

108 houses not on public water for a population of 410 (Ref. 16).

Computation of land area irrigated by supply well(s) drawing from <u>aquifer(s)</u> of <u>concern</u> within a 3-mile radius, and conversion to population (1.5 people per acre):

None identified (Ref. 17)

Total population served by ground water within a 3-mile radius:

410

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

None identified

Rationale for attributing the contaminants to the facility:

N/A

* * *

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

60 ft. in 1800 ft. for 3.3% slope (Ref. 14, 15).

Name/description of nearest downslope surface water:

Unnamed creek entering the Little Harpeth River north of the junction of Wilson Pike and Split Log Road (Ref. 14, 15).

Average slope of terrain between facility and above-cited surface water body in percent:

80 ft. in 1800 ft. for 4% slope (Ref. 14, 15).

Is the facility located either totally or partially in surface water?

No (Ref. 14, 15)

Is the facility completely surrounded by areas of higher elevation?

No (Ref. 14, 15)

1-Year 24-Hour Rainfall in Inches

3 inches (Ref. 9)

Distance to Nearest Downslope Surface Water

0.4 miles from the site to where surface drainage enters unnamed tributary of Little Harpeth River (Ref. 14, 15).

Physical State of Waste

Liquids dumped at site by admission of company (Ref. 10).

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Landfill not adequately covered and no diversion system present--drums and liquid emptied into pits and covered with no documentation indicating adequate cap (Ref. 10).

Method with highest score:

Landfill not covered, no diversion system present.

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

1,1-dichloroethene and 1,1-dichloroethane detected in pits A and B and monitoring #8 on site by State Superfund sampling (Ref. 1, 2).

Compound with highest score:

1,1-dichloroethene has a toxicity rating of 3 (Ref. 4) and a persistence rating of 2 (Ref. 9).

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

800 drums

Basis of estimating and/or computing waste quantity:

Genesco admission of the dumping of approximately 800 55-gallon barrels of waste material containing organic solvents, organic fillers, and water-based adhesives at the site by their subsidiary General Adhesives (Ref. 10).

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

Recreational use of the Little Harpeth River between Split Log Road and Concord Road (Ref. 17).

Is there tidal influence?

No (Ref. 14, 15)

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

None identified (Ref. 14, 15)

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

None identified (Ref. 14, 15)

Distance to critical habitat of an endangered species or national wildlife refuge, if I mile or less:

None identified (Ref. 18)

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

None identified (Ref. 19)

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

None identified (Ref. 17)

Total population served:
N/A
Name/description of nearest of above water bodies:
N/A
Distance to above-cited intakes, measured in stream miles:
N/A

AIR ROUTE NOT RATED

I OBSERVED RELEASE
Contaminants detected:
Date and Location of detection of contaminants:
Methods used to detect the contaminants:
Rationale for attributing the contaminants to the site:
* * *
2 WASTE CHARACTERISTICS
Reactivity and Incompatibility
Most reactive compound:
Most incompatible pair of compounds:

Toxicity

Most toxic compound:

ŀ	lazar	dous	W	aste	Qua	ntity

Total quantity of hazardous waste:

Basis of estimating and/or computing waste quantity:

* * *

3 TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi

0 to 1 mi

0 to 1/2 mi

0 to 1/4 mi

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

Distance to critical habitat of an endangered species, if 1 mile or less:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

FIRE AND EXPLOSION NOT RATED

1 CONTAINMENT
Hazardous substances present:
Type of containment, if applicable:
* * *
2 WASTE CHARACTERISTICS
Direct Evidence
Type of instrument and measurements:
<u>Ignitability</u>
Compound used:
Reactivity
Most reactive compound:
Incompatibility
Most incompatible pair of compounds:

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility:
Basis of estimating and/or computing waste quantity:
* * *
3 TARGETS Distance to Nearest Population
Distance to Nearest Building
Distance to Sensitive Environment Distance to wetlands:
Distance to critical habitat:
Land Use Distance to commercial/industrial area, if 1 mile or less:
Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:
Distance to residential area, if 2 miles or less:

Kennon Site TND 981473515

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

Population Within 2-Mile Radius

Buildings Within 2-Mile Radius

DIRECT CONTACT NOT RATED

I	OBSERVED INCIDENT
Date	, location, and pertinent details of incident:
	* * *
2	ACCESSIBILITY
Desc	ribe type of barrier(s):
	* * *
3	CONTAINMENT
Туре	of containment, if applicable:
	* * *
	~
4	WASTE CHARACTERISTICS
Toxic	city
Com	pounds evaluated:
Comi	pound with highest score:
Sviii	Source With Highwar ocores
	* * *

5 TARGETS

Population within one-mile radius

Distance to critical habitat (of endangered species)

TAM/ah Disc--Higgs/GrndW4 SF-12

REFERENCES

KENNON SITE (GENESCO)

TND 981473515

- Kennon Site Sampling and Event Chronology; State Superfund Sampling Results for Kennon Site (Genesco) with Sample Points for Wells/Springs. See Geraghty and Miller, 1986 for Sampling Locations.
- 2. Geraghty and Miller (1986): Plan for Investigation of the Kennon Site, Brentwood,
 Tennessee; prepared for Genesco, Inc., Dec. 1986.
- 3. G. Hawley, revised (1981): Condensed Chemical Dictionary, Tenth Edition; Van Nostrand Reinhold.
- 4. N.I. Sax (1984): Dangerous Properties of Industrial Materials, 6th Edition; Van Nostrand Reinhold.
- 5. (1963) Franklin Quadrangle Geologic Map GM 63 NE.
- 6. Beaver Engineering (1977): Bedrock Geology of the Nashville and Middle Tennessee Area.
- 7. 2/19/87 Letter from Roger W. Lee, U.S. Geological Survey to Todd Hughes, TN Dept. of Health and Environment (Superfund) Data on Observation Wells.

- 3/19/86 and 3/24/86 Analytical Reports from Wayne McCoy, Edge to Ronnie Bowers,
 DSF; Re: Kennon Property Analytical Results. Background Soil Sample (See Pond Sediment and Hackett Ditch).
- 9. (1984) Uncontrolled Hazardous Waste Site Ranking System, A Users Manual (HW-10), U.S. E.P.A.
- 5/21/85 Letter from Ralph Mosely, Genesco to Tom Tiesler, DSWM; RE: Chemical
 Waste Site Once Used by a Division of Genesco.
- 11. 2/19/86 Letter from Frank W. Clifton Jr. Brentwood City Manager to Don Shackleford, TN Div. Superfund; Re: Cost Estimates for Water Lines.
- 12. 7/28/86 Letter from Ralph Mosely, Genesco to Frank W. Clifton, Jr., Brentwood City Manager; Re: Service Connections.
- 13. 3/16.87 Conversation of Thomas A. Moss, DSF with Ronnie L. Bowers, DSF; Re: Kennon Site (Genesco) Sample Results, Water Use.
- 14. (1981) Franklin Quadrangle Topographic Map 63 NE.
- 15. (1957) Nolensville Quadrangle Topographic Map 70NW.
- 16. 4/24/87 TDH&E Memo from Thomas A. Moss, DSF to Kennon Site (Genesco) File;
 Re: Ground Water Use Survey/House County for 3 Mile Radius.

- 17. 3/10/87 Telephone Conversation of Thomas A. Moss, DSF with Robin Bowie, Williamson County Soil Conservation Service; Re: Surface and Groundwater Use for Irrigation in the Area of the Genesco Site.
- 18. 12/19/85 Letter from Robert M. Thatcher, TWRA to Gordon S. Caruthers, DSWM with attachments: Critical Wildlife Habitat of Tennessee.
- (1978) Water Quality Management Plan for the Lower Cumberland River Basin, TN
 Division of Water Quality Control.
- 20. Commissioners Order: Genesco Inc./Emmett & Rose Kennon. Order No. 863013.

TAM/dje SF #5

POTENTIAL HAZARDOUS WASTE SITE

		IFICATION
Ī	OI STATE	02 SITE NUMBER D 981473515

SEPA PART 1 · S	SITE INSPECT SITE LOCATION AN	_		TN	D 981473515
II. SITE NAME AND LOCATION					
01 SITE NAME (Legal common or descriptive name of site)		02 STREE	T, ROUTE NO., OR	SPECIFIC LOCATION IDENTIFIER	
Kennon (Genesco) Site		Spli	it Log Roa	d	
O3 CITY			05 ZIP CODE	DE COUNTY	OTCOUNTY DE CONS
Brentwood		TN	1	Williamson	* 187 6
09 COORDINATES LATITUDE LONGITUDE 35 57 25 86 45 44	10 TYPE OF OWNERS	🗀 B. FEI		C. STATE D. COUNT	
III. INSPECTION INFORMATION					
01 DATE OF INSPECTION D2 SITE STATUS 1,14,86 MONTH CAN YEAR D ACTIVE X INACTIVE	03 YEARS OF OPERA		781 1978 IR ENDING YE		1
04 AGENCY PERFORMING INSPECTION (Check all that apply)			-		
C A EPA D B. EPA CONTRACTOR	(Name of time)	_ DIC.MI	UNICIPAL 🗆 D.	MUNICIPAL CONTRACTOR _	(Nema of lam)
X E STATE D F. STATE CONTRACTOR	Name of lum:	_ 🗀 G. 01	THER	(Specky)	(Name or lam)
05 CHIEF INSPECTOR	OR TITLE		- <u>-</u>	07 ORGANIZATION	08 TELEPHONE NO
Charles Powers	Field	Čoordi	Instan	Suponfund	(615) 741-6287
D9 OTHER INSPECTORS	1011111	cooru	mator	Superfund	12 TELEPHONE NO
Ronnie Bowers		nmenta	al Special	1	(615) 741-6287
					()
		•			()
					()
					()
13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE		SADDRESS		16 TELEPHONE NO
Wayne McCoy		ŀ		sboro Rd.; Nash.	(613 383~3588
Ralph Mosely	Genesco		Genesco P	ark; Nashville	(61 5 367-7314
					()
					()
					()
					()
17 ACCESS GAINED BY Check one. X PERMISSION WARRANT	18 WEATHER CON	DITIONS	·	***************************************	
IV. INFORMATION AVAILABLE FROM					
U1 CONTACT	O2 OF IApency Great	maartini.			03 TELEPHONE NO
Charles Powers	TDH&E/Sup				615 741-6287
04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY		ANIZATION	D7 TELEPHONE NO	DE DATE
Thomas A. Moss	TDH&E	S	uperfund	(615) 741-6287	5 12 87 MOME CALL 1148

SEPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 2: WASTE INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

TN D 981473515

A SOURCE OF INFORMATION CAMERA MARKET STATES AND A SOURCE OF INFORMATION CAMERA MARKET		TATES, QUANTITIES, AN	D CHARACTER		03 WASTE CHARAC	TERISTICS (Check all that	(ADDIY)	
DIL MASTETYPE SUBSTANCE MANE OIGNOSS AMOUNT DIUNT OF MEASURE DICOMMENTS			musi be	endependenti	- B CABB	OSIVE TE INFE	ECTIOUS I J EXPLOS MMABLE I K REACT	S:VE IVE
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Dicategory C2 SUBSTANCE NAME D3 CAS NUMBER O4 STORAGE DISPOSAL METHOD D5 CONCENTRATION C6 CMCEN				.1	<u> </u>			· <u></u>
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SOL 2 Butanone (MEK) 78933 dumped in pits unknown SOL Xylene 1330207 dumped in pits unknown SOL Hexane 110543 dumped in pits unknown SOL 1,1,1 Trichloroethene 79016 dumped in pits unknown SOL Acetone 67641 dumped in pits unknown SOL 1,2 Dichloroethane 1300216 dumped in pits unknown SOL Benzene 71432 dumped in pits unknown V. FEEDSTOCKS (See Accession for CAS Number) CATEGORY 01 FEEDSTOCK NAME 02 CAS NUMBER CATEGORY D1 FEEDSTOCK NAME 02 CAS NO FDS FDS FDS FDS FDS FDS FDS VI. SOURCES OF INFORMATION CONSECUTION FOR ANY STATEMENT FEMORE FOR ANY STATEMENT FEBORS (FDS) VI. SOURCES OF INFORMATION CONSECUTION FOR ANY STATEMENT FEMORE FEBORS (FDS)			<u> </u>					<u> </u>
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FDS FDS FDS FDS VI. SOURCES OF INFORMATION Cite specific reterences, e.g. state files, sample enalysis reports:	FDS		<u> </u>	ļ . <u> </u>	FDS		····	
VI. SOURCES OF INFORMATION Cae specific reservences e.p. stere files, semplin analysis reports:	FDS				FDS			
VI. SOURCES OF INFORMATION. Cita specific reservences in p. island fines. sampling analysis integrals.	FDS			<u> </u>	FDS			
	FDS				FDS			
	VI. SOURCE	S OF INFORMATION CH	specific references in p	stere files sample enalysis	(BD0715)			
								··
State Superfund Files	State	Superfund Files						

SEPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

<u> </u>	IDEN	HEICATION
01	STATE	02 SITE NUMBER D 981473515
l	ΤN	D 981473515

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

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II. HAZARDOUS CONDITIONS AND INCIDENTS			
01 & A GROUNDWATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED. 410	02 K OBSERVED (DATE 1/28/86) 04 NARRATIVE DESCRIPTION	□ POTENTIAL	C ALLEGED
Hackett Spring sampling shows conta	amination. Population in are	a not on pub	lic water
approximately 410. Site is in Q rdo	ovician carbonates with no co	onfining laye	r for
aquifer of concern.		-4	Ţ
a. Ma aupraga water paga a	02 C OBSERVED (DATE)	2 POTENTIAL	□ ALLEGED
01 XB. SURFACE WATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED. 0	04 NARRATIVE DESCRIPTION	A POTENTIAL	L ALLEGED
Seep from site may enter tributary	of Little Harpeth River.		
01 C CONTAMINATION OF AIR	02-C OBSERVED (DATE:)	☐ POTENTIAL	Z ALLEGED
03 POPULATION POTENTIALLY AFFECTED	04 NARRATIVE DESCRIPTION	Brotenine	C HOLLOED
	κ.		
01 ☐ D. FIRE-EXPLOSIVE CONDITIONS	02 C OBSERVED (DATE)	D POTENTIAL	T ALLEGED
03 POPULATION POTENTIALLY AFFECTED:	04 NARRATIVE DESCRIPTION		
01 Z E. DIRECT CONTACT	02 T OBSERVED (DATE:)	C POTENTIAL	C: ALLEGED
03 POPULATION POTENTIALLY AFFECTED:	04 NARRATIVE DESCRIPTION	L POTENTIAL	C VITERED
	· · ·		
01 X'F CONTAMINATION OF SOIL	02 DOBSERVED (DATE)	TOTENTIAL	C ALLEGED
C3 AREA POTENTIALLY AFFECTED: UNKnown	04 NARRATIVE DESCRIPTION		
Seep leaving site. Drums and liqui	ds dumped in pits.		
		•	
			
01 % G. DRINKING WATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED 410	02 \$\infty\$ OBSERVED (DATE:1/28/86) 04 NARRATIVE DESCRIPTION	C POTENTIAL	ALLEGED
os for obthory of Entineer and Editor			
Hackett Spring sampling shows conta		-	
Population within three miles of si	te not on public water appro	ximately 410	•
	•		
01 ☐ H WORKER EXPOSURE/INJURY	02 D OBSERVED (DATE:)	POTENTIAL	E ALLEGED
03 WORKERS F ENTIALLY AFFECTED:	· · · · · · · · · · · · · · · · · · ·	C (0 . 2	E ALLOES
•			
01 T I POPULATION EXPOSURE/INJURY	02 T OBSERVED (DATE)	☐ POTENTIAL	I ALLEGED
03 POPULATION POTENTIALLY AFFECTED	04 NARRATIVE DESCRIPTION		
•			

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

i		TFICATION
ųν	STATE	02 SITE NUMBER
	TN	D 98147351

5 PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS II. HAZARDOUS CONDITIONS AND INCIDENTS Communication 02 C OBSERVED (DATE _____) C POTENTIAL 01 E J DAMAGE TO FLORA C ALLEGED **04 NARRATIVE DESCRIPTION** C ALLEGED 01 C K. DAMAGE TO FAUNA 02 C OBSERVED (DATE ______ □ POTENTIAL 04 NARRATIVE DESCRIPTION finclude namers of spacies! 01 C L CONTAMINATION OF FOOD CHAIN 02 C OBSERVED (DATE. _____) □ POTENTIAL ALLEGED 04 NARRATIVE DESCRIPTION D1 X M UNSTABLE CONTAINMENT OF WASTES 02 C OBSERVED (DATE: _____) C POTENTIAL **C ALLEGED** 03 POPULATION POTENTIALLY AFFECTED 410 04 NARRATIVE DESCRIPTION Drums and liquids dumped in pits. By admission of company. 01 T N DAMAGE TO OFFSITE PROPERTY 02 TOBSERVED (DATE ______) _ POTENTIAL I ALLEGED 04 NARRATIVE DESCRIPTION 01 □ 0 CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs 02 □ OBSERVED (DATE ______) E POTENTIAL I ALLEGED 04 NARRATIVE DESCRIPTION 01 X.P. ILLEGAL/UNAUTHORIZED DUMPING 02 I OBSERVED (DATE _____) _ POTENTIAL I ALLEGED 04 NARRATIVE DESCRIPTION Drums and liquids dumped in phosphate pits. Site was not a permitted landfill. 05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS III. TOTAL POPULATION POTENTIALLY AFFECTED: IV. COMMENTS Residents within a one mile radius of the site have been run municipal water from Brentwood at Genesco's expense. V. SOURCES OF INFORMATION Consider Contentions in pustate their particles and contentions. State Superfund Files

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POTENTIAL HAZARDOUS WASTE SITE

LIDEN	TION
DISTATE	ITE NUMBER
IN	_D_981473515

→ CPA	Si PART 4 - PERMIT	ITE INS			,,,, [TN D 981473515
<u> </u>	PART 4 - PERMIT	AND DE	SCHIP	TIVE INFURMAT	ION	
II. PERMIT INFORMATION		T		r a a sana a	Las possibles	
01 TYPE OF PERMITISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE IS	13069	04 EXPIRATION DATE	05 COMMENTS	
CIA NPDES		ļ			ļ <u>.</u>	
<u>Ω</u> Β υις		<u> </u>				
C AIR		<u> </u>			<u> </u>	
DO RCRA						
E RCRA INTERIM STATUS					<u> </u>	
TF SPCCPLAN						
G STATE (Souther						
☐ H. LOCAL (Specify)					Ţ [_]	
TI OTHER (Specify)						
XJ NONE						
III. SITE DESCRIPTION		<u> </u>		<u> </u>		
<u></u>	02 AMOUNT D3 UNIT OF	MEASURE	04 TR	LEATMENT (Check of that	וקיים	D5 OTHER
☐ A. SURFACE IMPOUNDMENT			١	NOTHER ATION		
D B. PILES			ì -	INCENERATION UNDERGROUND INJ	ECTION	D A. BUILDINGS ON SITE
C. DRUMS, ABOVE GROUND			S	CHEMICAL/PHYSICA		
□ D. TANK, ABOVE GROUND			□ D.	BIOLOGICAL		
☐ E. TANK, BELOW GROUND			□ E.	WASTE OIL PROCES	SING	06 AREA OF SITE
S. F. LANDFILL		as	Ĭ	SOLVENT RECOVER		
☐ G. LANDFARM ☐ H. OPEN DUMP			[OTHER RECYCLING	RECOVERY	(Acres)
I I OTHER			_ H.	OTHER	ecity;	k
(Specify) 07 COMMENTS						<u> </u>
Drums and liquids dump	ed in phosphate	pits	on s	ite and cove	ered.	
01 CONTAINMENT OF WASTES (Check one)						
Z A. ADEQUATE, SECURE	☐ B. MODERATE	⊒c ⊮	NADEOL	JATE, POOR	🕱 D. INSECU	IRE, UNSOUND, DANGEROUS
02 DESCRIPTION OF DRUMS, DIKING, LINERS, B	ARRIERS, ETC				·	<u>,,,,,,</u>
Drums dumped in phosph	ate pits on site	€.				
	•				!	
	·				·	
V. ACCESSIBILITY						
01 WASTE EASILY ACCESSIBLE C YES	3 3 € NO	- -				
	•				,	
VI. SOURCES OF INFORMATION CHES	uc lic references, e.g. state lies, sample	ahaysis (ep)	2/15			
State Superfund Files						
			-			

		DOTE	NTIAL HAZAR	ש פווחמו	ASTE SIT		I. IDE	NTIFICATION	
SEPA			SITE INSPEC	TION REP	ORT		OI STA	TE 02 SITE NUMBE N D 98147.	
II. DRINKING WATER SUP	PLY							··	
01 TYPE OF DRINKING SUPPLY (Check as applicable)			C2 STATUS	······································			03	DISTANCE TO SITE	
	URFACE	WELL .	ENDANGERE	D AFFE	CTED A	MONITORED			
COMMUNITY	A [3]	B. G	A 🗇			СП	A	<u> 3</u> . (n	uı)
NON-COMMUNITY	c. 🗆	D. 58t	D. 🗆	E	A	F. 🗆	В.	<u> </u>	nı)
II. GROUNDWATER									
DI GROUNDWATER USE IN VICIN	NITY (Check o	ne)							
S A ONLY SOURCE FOR DR	RINKING	D B DRINKING (Other sources available COMMERCIAL IND (No other water sources	USTRIAL, IRRIGATIO	(L)	OMMERCIAL	INDUSTRIAL IRRIGAT es everadie)	TION S	C D NOT USED, UNI	USEABLE
02 POPULATION SERVED BY GRO	OUND WAT	ER410		03 DISTANC	E TO NEARES	T DRINKING WATER	WELL	₹0.25 µ	mi)
04 DEPTH TO GROUNDWATER		05 DIRECTION OF GROU	INDWATER FLOW	D6 DEPTH TO DF CONC		07 POTENTIAL YIEL OF AQUIFER	6	D8 SOLE SOURCE	AQUIFER
30(m))	<u>Unknowr</u>	1	3	_	<u>Unknow</u>	(bag) (1	Ø YES	
Springs and wel average approxi		thin three mi	iles of si	te used	for dr	inking wate	er.	Well depth	ıs
average approxi		thin three mi		te used	······	inking wate	er.	Well depth	ns
average approxi		thin three mi		····	······		er.		ns
average approxi		thin three mi		11 DISCHAR	GE AREA		er.		ns
average approxi ORECHARGE AREA DYES COMMENTS		thin three mi		11 DISCHAR	GE AREA		er.		is
average approxi ORECHARGE AREA OYES COMMENTS ONO	imatel	thin three mi y 200 feet.		11 DISCHAR C YES D NO	GE AREA COMMENT				
AVERAGE AREA O YES COMMENTS O NO V. SURFACE WATER SURFACE WATER A. RESERVOIR, RECREATER DRINKING WATER SO	ene) ATION	thin three mi y 200 feet. DB. IRRIGATION IMPORTANT	iles of sit	11 DISCHAR C YES D NO	GE AREA COMMENT	S.	21	D. NOT CURRENT	LY USED
AVERAGE AREA O YES COMMENTS O NO V. SURFACE WATER SURFACE WATER A. RESERVOIR, RECRE. DRINKING WATER SO 2 AFFECTED/POTENTIALLY AFF	ene) (ATICN DURCE	thin three miy 200 feet. C B. IRRIGATION IMPORTANT	les of sit	11 DISCHAR TYES NO	GE AREA COMMENT	's	21		LYUSED
AVERAGE AREA O YES COMMENTS O NO V. SURFACE WATER SURFACE WATER USE ICHECK ORINKING WATER SO PARESERVOIR, RECRE. DRINKING WATER SO PARESERVOIR AFFECTED/POTENTIALLY AFFE NAME: Tribu	ene) ATICN DURCE FECTED BO	thin three mi y 200 feet. CB. IRRIGATION IMPORTANT DIES OF WATER	les of sit	11 DISCHAR TYES NO	GE AREA COMMENT	S.	21	D. NOT CURRENT	LY USED
AVERAGE AREA O YES COMMENTS O NO V. SURFACE WATER SURFACE WATER USE ICHECK ORINKING WATER SO PARESERVOIR, RECRE. DRINKING WATER SO PARESERVOIR AFFECTED/POTENTIALLY AFFE NAME: Tribu	ene) ATICN DURCE FECTED BO	thin three miy 200 feet. C B. IRRIGATION IMPORTANT	les of sit	11 DISCHAR TYES NO	GE AREA COMMENT	S.	21	D. NOT CURRENT DISTANCE TO S	LY USED
average approxi O RECHARGE AREA C YES COMMENTS O NO V. SURFACE WATER SURFACE WATER USE (Checked DRINKING WATER SCIENCE SC	ene) AATICN DURCE FECTED BO	thin three miy 200 feet. C B. IRRIGATION IMPORTANT DIES OF WATER of Little Har peth River	les of sit	11 DISCHAR TYES NO	GE AREA COMMENT	AL INDUSTRIAL AFFECTED	21	D. NOT CURRENT DISTANCE TO S	LY USED
AVERAGE AREA O YES COMMENTS O NO V. SURFACE WATER O SURFACE WATER USE ICHICLE A. RESERVOIR, RECRE. DRINKING WATER SO 22 AFFECTED/POTENTIALLY AFF NAME: Tribu	ene) AATICN DURCE FECTED BO	thin three miy 200 feet. C B. IRRIGATION IMPORTANT DIES OF WATER of Little Har peth River	les of sit	11 DISCHAR TYES NO	GE AREA COMMENT	AL INDUSTRIAL AFFECTED	21	D. NOT CURRENT DISTANCE TO S 0 . 1	LY USED
AVERAGE AREA O YES COMMENTS O NO V. SURFACE WATER O SURFACE WATER USE /Cheese ORINKING WATER SO O AFFECTED/POTENTIALLY AFF NAME: Tribu Littl // DEMOGRAPHIC AND PE	ene) ATICN DURCE FECTED BO Utary Le Har	thin three miy 200 feet. C B. IRRIGATION IMPORTANT DIES OF WATER of Little Har peth River	ECONOMICALLY RESOURCES	11 DISCHAR TYES NO	GE AREA COMMENT	AFFECTED	21	D. NOT CURRENT DISTANCE TO S 0 . 1	LY USED
AVERAGE AREA O YES COMMENTS O NO V. SURFACE WATER SURFACE WATER A RESERVOIR, RECREDING WATER SO EXAFFECTED/POTENTIALLY AFF NAME: Tribut Littl // DEMOGRAPHIC AND PE	ene) ATICN DURCE FECTED BO Utary Le Har	thin three miy 200 feet. © B. IRRIGATION IMPORTANT DIES OF WATER of Little Har peth River	ECONOMICALLY RESOURCES THREE (3	11 DISCHAR C YES D NO	GE AREA COMMENT COMMERCIA	AFFECTED	21	D. NOT CURRENT DISTANCE TO S 0 . 1	LY USED

CS POPULATION WITHIN VICINITY OF SITE (Provide natraine description of nature of population within vicinity of side a go rural vidage densely populated urban area)

POTENTIAL HAZARDOUS WASTE SITE

I. IDENTIFICATION							
DISTALE	GZ SITE NUMBER						
l	l						

WEPA	PART	SITE INSPEC 5 - WATER, DEMOGRAPH:	TION REPORT IC, AND ENVIROI	NMENTAL DATA	IN D 981473515				
VI. ENVIRONMENTAL INFORMATION									
UT PERMEABILITY OF UNSATURATED ZONE (Create one)									
□ A 10-6 - 10-	* om/sec [□ B 10-4 - 10-6 cm/sec □	C. 10-4 - 10-3 cm/	SEC D GREATER THAI	V 10°° cm-sec				
02 PERMEABILITY OF BEDROCK (Check one)									
C A IMPERMEABLE C B RELATIVELY IMPERMEABLE C C RELATIVELY PERMEABLE C D VERY PERMEABLE (Legalinen 10-6 cm sec) (10-6 cm sec) (10-6 cm sec) (Chealer Inen 10-6 cm sec)									
03 DEPTH TO BEDROCK	04 DEPTH OF	CONTAMINATED SOIL ZONE	05 SOIL PH	1					
10(m)		(ft)							
OF NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL		OB SLOPE SITE SLOPE	DIRECTION OF SITE SLOP	SITE SLOPE TERRAIN AVERAGE SLOPE				
48 (in)		<u>3</u> (m)	4 %	SW	4 %				
09 FLOOD POTENTIAL	·	10		L	· 				
SITE IS IN YEAR FLO	ODPLAIN	C SITE IS ON BARRIE	ER ISLAND, COASTAI	L HIGH HAZARD AREA, RIVE	ERINE FLOODWAY				
11 DISTANCE TO WETLANDS 15 acre mornium) 12 DISTANCE TO CRITICAL HABITAT IN					es)				
ESTUARINE		OTHER	(mi)						
A(mi)	B	(mi)	ENDANGERE	D SPECIES:					
13 LAND USE IN VICINITY	·			· · · · · · · · · · · · · · · · · · ·					
DISTANCE TO:									
RESIDENTIAL AREAS, NATIONAL/STATE PARKS, AGRICULTURAL LANDS COMMERCIAL/INDUSTRIAL FORESTS, OR WILDLIFE RESERVES PRIME AG LAND AG LAND									
A (mi)		Ð	(mi)	C(mi) D(mi)				
14 DESCRIPTION OF SITE IN RELATION T	TO SURROUND	NG TOPOGRAPHY							
Site is in rural a residences in the			ith a number	of old farmhous	es and newer				
VII. SOURCES OF INFORMATION . Cire apacific references in g., state ties, semone analysis, reports)									
State Superfund Files									

SEPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

I. IDENTIFICATION
OF STATE C2 SITE NUMBER
TN D 981473515

		r	ANT 6-SAMPLE AND FILED INFORMATION	
II. SAMPLES TAKE	N			
SAMPLE TYPE		01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	CO ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER				
SURFACE WATER				
WASTE				
AIR				
RUNOFF				
SPILL				
SOIL				
VEGETATION				
OTHER				
III. FIELD MEASUR	EMENTS TA	KEN		
OI TYPE		02 COMMENTS		
······································	· · · · · · · · · · · · · · · · · · ·			
				- · · · · · -
	-			
				, ,
IV. PHOTOGRAPHS	AND MAPS	<u> </u>		•
DI TYPE I GROUN	D = AERIAL		02 IN CUSTODY OF	
03 MAPS	04 LOCATION	OF MAPS	rvame o organizaten bi individua.	
□ NO				
V. OTHER FIELD D.	ATA COLLE	C I EU "Provide narialive pe	scrotions	
Numerous on site.	wells h	ave been sam	pled within the vicinity of the site as well as	s pits
VI. SOURCES OF IN	FORMATIO	N (Coe specific reserences)	nici state fresi sample analysis i epons	
State Sup	erfund F	iles		

SEPA		POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 7 - OWNER INFORMATION		OISTATE O	2 517E NUMBER D 981473515
II. CURRENT OWNER(S)			PARENT COMPANY III ADDITED	10.	
O1 NAME	02 D	+ B NUMBER	DB NAME		09 D+B NUMBER
Emmett Kennon 03 STREET ADDRESS > 0 Box 8/D* *(c)		· · · · · · · · · · · · · · · · · · ·	220552 200552		1
03 STREET AUDHESS > 0 Bn: A/p + etc.;		104 SIC CODE	10 STREET ADDRESS IP O Bos RFD	eic j	11 SIC CODE
2934 Sidco Drive	**** 2 3	10.6055	12 CITY	In State	14 ZIP CODE
	TATE OF Z		12601	(13312)	THE ESSE
Nashville] T		37204 + B NUMBER	OB NAME		09 D+B NUMBER
UTARME]02.5	- B NOMBEN	ob many		o o o o o o o o o o o o o o o o o o o
03 STREET ADDRESS -> 0 80 AFD	1	04 SIC CODE	10 STREET ADDRESS IP D Box RFD	r. elc J	11 SIC CODE
D5 C1T v 06 S	TATE 07	IP CODE	12 CITY	13 STATE	1 4 ZIP CODE
O' NAME	021	D+ B NUMBER	OB NAME		08 D+B NUMBER
D3 STREET ADDRESS . P O Bos RFD . etc !		04 SIC CODE	10 STREET ADDRESS (P D Box RFD	●. e(c.)	11SIC CODE
OS CITY O6 S	TATE 07 2	IP CODE	12 CITY	13 STATE	14 ZIP CODE
0) NAME	02 0	+ B NUMBER	OB NAME		DS D+B NUMBER
D3 STREET ADDRESS IP C BOL AFD P		04 SIC CODE	10 STREET ADDRESS (P.O. Box. RFD / BIC)		1 : SIC CODE
05 CITY 06 S	STATE D7	IP CODE	12 CITY	13 STATE	14 ZIP CODE
III. PREVIOUS OWNER(S) (List most recent first)			IV. REALTY OWNER(S) III ADDIE	cable list most recent (vist)	
OI NAME	02 0	+ B NUMBER	O1 NAME		02 D+B NUMBER
C3 STREET ADDRESS, P O Box RFD . BIC.,		04 SIC CODE	03 STREET ADDRESS (P. O. Bos. RFD	F. 01C)	04 SIC CODE
C5 CITY OE ST	TATE CT Z	IP CODE	OS CITY	DG STATE	D7 ZIP CODE
O) NAME	02 D	+ B NUMBER	O1 NAME		02 D+8 NUMBER
OB STREET ADDRESS (P D Box RED = etc.)	· · · · · · · · · · · · · · · · · · ·	04 SIC CODE	D3 STREET ADDRESS (P O BOX RFD *. +IE.)		04 SIC CODE
05 CITY 06 S'	TATE 07 Z	P CODE	05 CITY	O6 STATE	C7 ZIP CODE
D1 NAME	02 t	+ B NUMBER	D1 NAME		D2 D+B NUMBER
03 STREET ADDRESS P C 80, RFD # etc 1		04 SIC CODE	03 STREET ADDRESS (P.O. Box RFD	etc	04 SIC CODE
05CITY 06ST	ATE OF	ZIP CODE	05 CITY	O6 STATE	O7 ZIP CODE
V. SOURCES OF INFORMATION City Specific refere	inces e.g. k	ele les semple enaivs	is reports,	1	<u> </u>
State Superfund Files					

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	-	$P\Delta$
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POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

1. IDENTIFICATION				
	02 SITE NUMBER			
TN	D 981473515			

		i	PART 8 - OPERA	TOR INFORMATION	114	7 70 14 7 3 3 1 3
II. CURRENT OPERATO	OR i Provide il dillerent tron	nowna		OPERATOR'S PARENT COMPAN	Y III applicables	<u> </u>
01 NAME	· · · · · · · · · · · · · · · · · · ·		2 D≠B NUMBER	10 NAME		1) D+BNUMBER
03 STREET ADDRESS PO D	ON RED F DIC)		04 SIC CODE	12 STREET ADDRESS (P.O. BOX RED . OIC)		13 SIC CODE
	·	los er er le			lie Franci	
05 CITY		D6 STATE D	17 ZIP CODE	14 CITY	ISSIAIE	16 ZIP CODE
DB YEARS OF OPERATION	D9 NAME OF OWNER	<u> </u>			<u>i</u> 1	
III, PREVIOUS OPERAT	OR(S) (List most recent to	st provide only	d cillerent from owners	PREVIOUS OPERATORS' PAREN	NT COMPANIES	PDPIC & DIE!
01 NAME			2 U+B NUMBER	10 NAME		11 D+B NUMBER
		Ì				
03 STREET ADDRESS IP O BI	os. RFD # esc)	-	04 SIC CODE	12 STREET ADDRESS (P.O. Box. RFD #, etc.)		13 SIC CODE
0.6.0.7		los state la	. 100005		les syers!	
05 CITY		D6 STATE C	77 ZIP CODE	14 CITY	ISSIAIE	16 ZIP CODE
OB YEARS OF OPERATION	09 NAME OF OWNER (DURING THIS	PEHIOD			
•						
01 NAME		0	2 D+B NUMBER	10 NAME		11 D+B NUMBER
03 STREET ADDRESS (P O Bo	a RED F. BIC.)		D4 SIC CODE	12 STREET ADDRESS (P.O. Box. RFD r. etc.)		13 SIC CODE
05 CITY		DE STATE D	7 ZIP CODÉ	14 CITY	15 STATE	16 ZIP CODE
OB YEARS OF OPERATION	09 NAME OF OWNER	DURING THIS	PERIOD			
oo reallo or or enamon	os wang or owner.					
D1 NAME	1.		2 D+B NUMBER	10 NAME		11 D+B NUMBER
03 STREET ADDRESS (P D Bo	z RFD# #IC)		04 SIC CODE	12 STREET ADDRESS IP O Box RFD + elc I		13 SIC CODE
	····					
DS CITY		06 STATE C	7 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
DB YEARS OF OPERATION	09 NAME OF OWNER	DUBING THIS	SERIOD.			
de TEXAS OF OPERATION	OS IVAME OF CUITER	DOMING THIS	FERIOD			
IV. SOURCES OF INFO	RMATION /Cra spacer		T ELSIA MA - REMNIA ANALYSI	Legans		
			•			

_	POTENTIAL HAZARDOUS WASTE SITE				1. IDENTIFICATION	
SFPA				CTION REPORT	UT STATE G2 SITE NUMBER	
		9 - GI	ENERATOR/TR	ANSPORTER INFORMATION	TN	D 981473515
II. ON-SITE GENERATOR						
UT NAME		02 0-	BNUMBER			
_						
UJ STREET ADDRESS (P.O. BOX RED # #10.)		1	04 SIC CODE	-		
od o MEET RODACION D' SOL MOST SICY		ĺ		Í		
an civi	D6 STATE	102.79	0000	_	•	:
OS CITY	0031212	107 21	CODE	İ		
		<u> </u>				
III. OFF-SITE GENERATOR(S)						
D1 NAME		05 0-	+B NUMBER	O) NAME		02 D+B NUMBER
General Adhesives		<u> </u>		_		
03 STREET ADDRESS (P O Box RFD P. etc.)			04 SIC CODE	03 STREET ADDRESS IP O Box RFD . etc.		04 SIC CODE
6100 Centennial Blvd.		Ī				
05 CITY	. 06 STATE	1		05 CITY	06 STATE	07 ZIP CODE
Nashville	TN	3	37202		}	
D1 NAME		02 D-	B NUMBER	DI NAME		02 D+B NUMBER
Canada						
Genesco 03 STREET ADDRESS (P.O. BOX. RFD # 810.)		-	04 SIC CODE	03 STREET ADDRESS (F O Box, RFD F, etc.)		To4 SIC CODE
Genesco Park		İ		1		}
OS CITY	D6 STATE	07.71	e cope	OS CITY	ID6 STATE	07 ZIP CODE
Nashville	TN		37202			0.2. 0000
		<u>L.,</u>		<u></u>		<u> </u>
IV. TRANSPORTER(S)		(
O1 NAME		02 D	+ B NUMBER	O1 NAME	j	02 D+B NUMBER
03 STREET ADDRESS (P O Box RFD +. 41c)			D4 SIC CODE	D3 STREET ADDRESS IP D Box, RFD #, MC.1		04 SIC CODE
		- (
05 CITY	C6 STATE	07 21	P CODE	05 CITY	O6 STATE	07 ZIP CODE
	-					
O1 NAME		G2 D	BNUMBER	OT NAME		02 D+B NUMBER
				į	-	· ·
03 STREET ADDRESS IP O BOL AFD # . #12]			04 SIC CODE	C3 STREET ADDRESS (P C Box RFD # . etc.)		04 SIC CODE
		l				·
O5 CITY	DE TATE	O7 ZI	PCODE	IOS CITY	06 STATE	D7 ZIP CODE
					İ	
W COURSES OF INFORMATION	1	1				<u> </u>
V. SOURCES OF INFORMATION (CRe SDEC	dic references.	e p , ste	te feas sample analysis i	reports)		
						:
State Superfund Files						
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POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 10 - PAST RESPONSE ACTIVITIES

		TIFICATION
QΤ	STATE	U2 SITE NUMBER
	TN	D 98147351

	PART 10 - PAST RESPONSE ACTIVITIES		[IN] D 9814/3515
II. PAST RESPONSE ACTIVITIES			· · · · · · · · · · · · · · · · · · ·
01 D. A. WATER SUPPLY CLOSED 04 DESCRIPTION	02 DATE	03 AGENCY	
01 D B. TEMPORARY WATER SUPPLY PROVIDED TO DESCRIPTION	DED 02 DATE	03 AGENCY	
01 \$ C PERMANENT WATER SUPPLY PROVIDED TO THE	DED 02 DATE 11/86	03 AGENCY	Superfund
Brentwood water lines ru	n to residents within one mile	e of site.	Paid for by Genesco
01 C D SPILLED MATERIAL REMOVED 04 DESCRIPTION	02 DATE	03 AGENCY	
01 Z E. CONTAMINATED SOIL REMOVED 04 DESCRIPTION	02 DATE	03 AGENCY	
01 D. F. WASTE REPACKAGED 04 DESCRIPTION	02 DATE	03 AGENCY	
01 C. G. WASTE DISPOSED ELSEWHERE 04 DESCRIPTION	02 DATE	03 AGENCY	
01 TH ON SITE BURIAL 04 DESCRIPTION	Q2 DATE	03 AGENCY	
01 T. I. IN SITU CHEMICAL TREATMENT 04 DESCRIPTION	O2 DATE	03 AGENCY	
01 T.J. IN SITU BIOLOGICAL TREATMENT 04 DESCRIPTION	02 DATE	03 AGENCY	
01 TK IN SITU PHYSICAL TREATMENT 04 DESCRIPTION	C2 DATE	03 AGENCY	
01 T. L. ENCAPSULATION 04 DESCRIPTION	02 DATE	03 AGENCY	
D1 TM EMERGENCY WASTE TREATMENT 04 DESCRIPTION	O2 DATE	D3 AGENCY	
01 C N CUTOFF WALLS 04 DESCRIPTION	C2 DATE	C3 AGENCY	
04 DESCRIPTION	er Diversion 02 DATE 1/86 onstructed to limit off site c		·
01 E. P. CUTOFF TRENCHES:SUMP 04 DESCRIPTION	C2 DATE	03 AGENCY	
D1 I C SUBSURFACE CUTOFF WALL 04 DESCRIPTION	02 DATE	03 AGENCY	

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POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION
OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE NUMBER
TN D 981473515

ST RESPONSE ACTIVITIES (Continued)		
DI CH BARRIER WALLS CONSTRUCTED D4 DESCRIPTION	O2 DATE	03 AGENCY
01 C S CAPPING/COVERING 04 DESCRIPTION	02 DATE	03 AGENCY
01 □ T BULK TANKAGE REPAIRED 04 DESCRIPTION	02 DATE	03 AGENCY
01 🗇 U. GROUT CURTAIN CONSTRUCTED 04 DESCRIPTION	02 DATE	D3 AGENCY
01 T V BOTTOM SEALED 04 DESCRIPTION	02 DATE	D3 AGENCY
01 □ W GAS CONTROL 04 DESCRIPTION	02 DATE	03 AGENCY
01 □ X. FIRE CONTROL 04 DESCRIPTION	02 DATE	03 AGENCY
01 T.Y. LEACHATE TREATMENT 04 DESCRIPTION	02 DATE	03 AGENCY
01 C. Z. AREA EVACUATED 04 DESCRIPTION	02 DATE	03 AGENCY
D1 D 1. ACCESS TO SITE RESTRICTED D4 DESCRIPTION	O2 DATE	03 AGENCY
01 D 2 POPULATION RELOCATED 04 DESCRIPTION	02 DATE	03 AGENCY
01 C 3. OTHER REMEDIAL ACTIVITIES 04 DESCRIPTION	02 DATE	D3 AGENCY

III. SOURCES OF INFORMATION (Cité specific reférences » C. state files semble enalysis (epoins)

State Superfund Files; Geraghty and Miller 1986 Report



POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 11 - ENFORCEMENT INFORMATION

1. IDENTIFICATION

01 STATE 02 SITE NUMBER

TN D 981473515

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION () YES | 3 NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

III. SOURCES OF INFORMATION (Cité apecific reférences e.g., state files, sample enavais, reports)

SECTION OF THE PROPERTY OF SECTION OF SECTIO

KENNON SITE

Site No. TND 981473575

Reference No. 1

Sampling log

Superfund File

94-508

KENNON SITE (GENESCO)

<u>Date</u>	EVENT
1/15/86 1/22/86	Monitoring well installation begins. Areas of suspected pits excavated. Samples of water, waste, and soil obtained.
1/24/86	Further excavation of suspected pits to determine extint of dumping. Monitoring well installation continues. Local person informes state personnel of nearby wells and spings being used for drinking water.
1/28/86	Sampling of offsite Hacket Spring and Fletcher Well. Seep below site is also sampled. Full priority pollutants analysis is requested.
1/29/36	Resampled Fletcher Well (previously sampled 1/28/86) due to concern of owner over taking sample from his holding tank.
2/7/86	Resample Hacket Spring after heavy rain.
2/11/36	Sample Hacket Spring for verification of analysis by State Laboratory. Sample Myatt well also.
2/12/36	Sample offsite drinking water sources - Steve Smith Spring, Pewitt Well, Fischer Well, Johnson Well, Stubblefield Spring.
2/13/86	Sample offsite drinking water sources - Glass Well, Levine Well. Sharp Spring, Reece Smith Spring.
2/14/36	Sample offsite drinking water sources - Foscer Tell, William Harpeth River at Moores Lane Bridge.
2/17/36	Sample offsite drinking water sources - Hacket Spring at incide Tap, Allen Well, Primm Spring, Sullivan Well, Legieza Well.
2/13/86	Meeting with Genesco Consultants to discuss sampling plans in Shallow Monitoring Wells onsite. Determined areas of soil borings and offsite shallow monitoring wells. Charcoal filter was installed at Hacket's home by Genesco.
2/21/86	Sample Hacket water supply at Tap after installation of the charcoal filter. Split one sample of Monitoring well #8 onsite with Genesco Consultant. Sample spring below Edgar Johnson's home.
2/24/86	Resample Legiaza well to verify results with State Laboratory.

<u>Date</u>	Event
2/25/ 86	Sample offsite drinking water sources - Denny Well, Waggoner Well, Lowe Well, Hackett Creek (above spring), Hackett Creek (below Spring), Little Harpeth (below Hackett Creek), Dickie Well, Beyer Well, Clark Well, Dalton Well.
	Sampled offsite drinking water sources - Scott Well, Myatt Well, Mallory Well, Howe Well, Carson Spring.
2/26/86	All individuals whose Analysis had been returned were called and informed of these results. Sampled offsite drinking water sources - Turner Well, Clark Well, Burris Well.
. 17/86	Sample offsite drinking water sources - Atkinson Well, Denny Well (resampled), Shaw Well.
2/3/86	Drilling of shallow monitoring wells continue. Genesco consultants are running an Electro Magnetic survey of the site to determine areas of dumping.
3/4/86	Genesco Consultants are running a ground penetrating radar survey. Drill crew is still working. Delivered sample results to residences.
3/5/86	Sample Holt Well.
3/6/86	Talked to several citizens about there wells. (Outside 3 mile radius).
3/7/86	Sample offsite drinking water sources - Mallory Well, Myatt Well, Pewitt Well, Anderson Well.
3/11/86	Sample offsite drinking water sources - Dennison Well, Harmon Well.

RB/lag Customs House #8

KENNON SITE/GENESCO SAMPLING

FAMILY NAME	SPRING/WELL	SAMPLE DATE	RESULTS RE	PORT ON FIL
Hackett	Spring	1-28-86 2-7-86 2-11-86 2-17-86 2-21-86	Detected Detected Detected Detected No results yet	Yes Yes Yes Yes
Fletcher	Well	1-29-86	Non-detected	Yes
Myatt	Well	2-11-86	Non-detected	Yes
Smith (Steve)	Spring	2-12-86	Non-detected	Yes
Pewitt	Well	2-12-86	Non-detected	Yes
Fisher	Well	2-16-86	Non-detected	Yes
Johnson	Well	2-16-86	Non-detected	Yes
Stubblefield (Younger & Stubblef	Spring Field)	2-12-86	Non-detected	Yes
Glass	Well	2-13-86	Non-detected	Yes
Foster	Well	2-14-86	Non-detected	Yes
Levine	Well	2-13-86	Non-detected	Yes
Sharp/Farrar	Spring	2-13-86	Non-detected	Yes
Smith (Reece)	Spring	2-13-86	Non-detected	Yes
Allen	Well	2-17-86	Non-detected	Yes
Primm	Spring	2-17-86	Non-detected	Yes
Sullivan	Well	2-17-86	Non-detected	Yes
Legieza	Well	2-17-86	Detected	Yes
Little Harpeth	River	2-14-86	Non-detected	Yes

CHRONOLOGY - KENNON (GENESCO SITE)

May 21, 1985

By a letter dated 5/21/85 signed by Ralph Mosley, Genesco Inc., Genesco Park, Nashville, Tennessee 37202 notified the Division of Solid Waste Management of a chemical waste site once used by a division of Genesco, Inc. (General Adhesives). The site is on a farm owned by Emmett N. Kennon. Genesco, Inc. solicited the assistance and approval of TDHE with respects to certain actions. Genesco indicated that some of the waste was buried in barrels (50 - 80 barrels) and the remainder (44,000 gallons) was poured into a phosphate pit or Genesco, Inc. stated that they believed the waste contained water based adhesives and may have contained acetone, ethyl acetate, hexane, methylene methyethyl ketone, rubber solvent, toluene, trichlorolthane, trichloroethylene, and organic Genesco, Inc. expressed the intent to excavate, exhume, analyze and dispose of contaminated materials.

May 31, 1985

Don Shackleford, Head of Superfund Section, Barry Atnip, Field Coordinator, Superfund, Ralph Mosley, Genesco, and Wayne McCoy, Resource Consultant met to discuss the site. Genesco indicated that they were not sure if they really had a problem or if there was a problem they believed that it possibly was not very extensive. They agreed to submit an investigation plan by August 15, 1985.

July 2, 1985

Barry Atnip, Coordinator Superfund, Ralph Mosley, Genesco, Ed Wilson and Mark Levy of Geologic Associates, Edgar Johnson (Kennon Foreman) and Emmett Kennon made a vist to the site. This was a preliminary site investigation to visually assess the site. The trip report stated in part that there were no houses near, utility water available to homes in the area and pits were covered and sown in grass.

August 13, 1985

A proposed plan of investigation dated August 9, 1985 was received.

August 22, 1985

Barry Atnip, Coordinator, Superfund, Todd Hughes, Geologist, Superfund and Charles Powers, Coordinator, Superfund met to review the proposed plan of investigation. Several revisions were agreed on as being needed.

August 28, 1985

A letter to Ralph Mosley, Genesco, dated August 28, 1985 signed by Charles H. Powers stating the required revisions of the proposed plan of investigation was mailed.

September 13, 1985

As requested by Ralph Mosely, Genesco. Todd Hughes, Geologist, Wayne McCoy of Resource Consultants and Charles Powers, Coordinator, Superfund met to discuss the required revisions to the site investigation plan.

September 25, 1985	A revised proposed plan of investigation dated September 20, 1985 was received from Genesco with cover letter from Ralph Mosely to Charles Powers. The plan included all the required revisions.
October 2, 1985	By letter dated October 2, 1984 from Charles Powers, Superfund to Ralph Mosely, Genesco, the revised plan of investigation dated September 20, 1985 was approved.
October 9, 1985	Charles Powers, was notified by phone by Ralph Mosely that Task A and B had been started.
December 12, 1985	Charles Powers, Coordinator, Todd Hughes, Geologist, Ralph Mosely, Genesco, Wayne McCoy Rsource Consultants, and Mark Levy of Geologic Associates met for an update on the work. Wayne McCoy stated that Task A and B was completed. They presented a map indicating locations of trenches and proposed locations of wells for installation of piezometers. The start of the well drilling and pit excavation for exact location and testing would start immediately after January 1, 1986.
December 23, 1985	Received from Ralph Mosely, Genesco to Charles Powers, Superfund a ground water monitoring configuration which Todd Hughes had requested.
January 6, 1986	Todd Hughes and Charles Powers sent letter dated January 6, 1986 to Ralph Mosely stating our concerns relative to the kind of pipe proposed to be used and that if the wells were to be used for long term sampling then a different kind of pipe must be used.
January 14, 1986	Charles Powers, Coordinator and Ronnie Bowers, Superfund made a site visit and joined Wayne McCoy of Edge and Ralph Mosely, Genesco. Geologic Associates started drilling the wells.
January 17, 1986	Ronnie Bowers, Superfund and Charles Powers, Superfund made a site visit. We saw Mr. Hobbs of Geologic Associates. Two wells had been completed and a third well started.
January 22, 1986	Excavation of the pits for sampling started. Ronnie Bowers and Todd Hughes collected samples for Superfund. Geologic Associates did sampling for Genesco.
January 27, 1986	Meeting with Genesco, Inc. Don Shackleford, Todd Hughes, Ralph Mosely, Wayne McCoy, Ronnie Bowers, Mark Levy and Charles Powers attended. This was a session of updating. It appeared that the problem was much larger than expected. Sampling was discussed. We became aware that there were wells and springs in the area used for drinking water. An

immediate sampling plan and informatrion to homeowners was initiated. This included immediate samples of Mr. Hackett's and Dr. Fletcher's drinking water.

Ralph Mosely stated that the transport of waste was by Mr. Kennon driver and truck and possibly a vehicle owned or operated by Genesco.

January 28, 1986

Sampling was started on Mr. Hackett's spring. A complete list of water supply sampling and dates are attached. This list is complete up to 2-14-86. Sampling of water supply is continuing as of February 25, 1986.

. ebruary 11, 1986

Laboratory report received relative to Hackett's spring. Genesco, Inc. made plan and commitment to furnish bottled water to all households in the area if they wanted the service.

February 13, 1986

State Laboratory verified sample results of Hacketts Spring. Dr. Michael T. Bruner, Assistant Commissioner, Department of Health and Environment issued a press release.

February 18, 1986

A charcoal filter system installed in Hacketts Water supply.

February 19, 1986

An update meeting with the following present: Levy, Seaborg, Kennon, Mosely, McCoy, Shackleford, Roland, Hughes, Powers, Bowers and Ault. Mr. Shackleford stated that we would prepare an order and would attempt to get it through the system in one (1) month. Mr. Kennon, in response to a question, stated that to the best of his knowledge no one else used the site for a dump.

A letter signed by James Ault, Director of Superfund dated February 19, 1986 to Mr. Kennon and Ralph Mosely requesting them to respond to us relative to all known responsible parties.

February 24, 1986

Dr. Michael T. Bruner, Assistant Commissioner attended the Brentwood City Commission meeting and presented the state's position.

DS/sdm/CH-8



SERVICES

5815 Middiebri 1976 • Knoxville, Tennessee 37921 • 11 585-6411

CERTIFICATE OF ANALYSIS

15: IT Corporation

ATTN: Cliff Vaughan 312 Directors Drive Knoxville, TN 37923 DATE REPORTED PROJECT CONE

February 6, 1986

ITEK 21683

ORDER NUMBER: TN Contract FA-1353

Sample Description: Kennon Site Pit A, 1-22-86, 1:30

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (prb)
acrolein	ND	1,1-dichloroethene	290.
acrylonitrile	ND	trans-1,2-dichloroethene	3,000.
benzene	200.	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	KD .
bromoform	ND	trans-1,3-dichloropropene	المارة المارة المارة المارة المارة المارة المارة المارة المارة المارة المارة المارة المارة المارة المارة المارة
bromomethane	СИ	ethyl benzene	300.
carbon tetrachloride	ND	methylene chloride	340,
chlorobenzene	14.	1,1,2,2-tetrachloroethane	ND (ND)
chloroethane	750.	tetrachloroethene	110.
2-chloroethylvinyl ether	МD	toluene	120.000.
chloroform	ND	1,1,1-trichloroethane	2,000.
chloromethane	МÐ	1,1,2-trichloroethane	CN
dibromochloromethane	DИ	trichloroethene	75.
1,1-dichloroethane	4,300.	vinyl chloride	<10.
1,2-dichloroethane	1,200.	-	

Remarks: ND = Not detected.

<10. = Detected but at a level less than the quantitation limit. (Numerical value
 is the quantitation limit.)</pre>

Swom to and subscribed bef	ore me this		5th
cay of Februa	ry, 1986		
My commission expires		16,	1988

Notary Public

Approved by

Approved by

<u>Laborationy Manager</u>







5815 Middlebrook Pike • Knoxville Tennessee 37901 • 615 588 6401

CERTIFICATE OF ANALYSIS

TO IT Componation

ATTN: Cliff Vaughan 312 Directors Drive Knoxville, TN 37923 Divisi pendering

Fobruary 6 1096

PROJECT CODE

ITEK 21683

ORDER NUMBER

TN Contract FA-1353

Sample Description: Kennon Site Pit B, Grab Waste, 1-22-86, 11:30

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppm)	Compound	Concentration (ppm)
acrolein	ND	1,1-dichloroethene	ND .
acrylonitrile	ND	trans-1,2-dichloroethene	ND
benzene	ND	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	DM
bromomethane	ND	ethyl benzene	ND
carbon tetrachloride	ND	methylene chloride	<20,000.
chlorobenzene	ND	1,1,2,2-tetrachloroethane	ND
chloroethane	ND	tetrachloroethene	<20,000.
2-chloroethylvinyl ether	ND	toluene	570,000.
chloroform	ND	1,1,1-trichloroethane	<20,000.
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	<20,000.
l,l-dichloroethane	ND	vinyl chloride	ND
1.2-dichloroethane	ND	,	-

Remarks: ND = Not detected.

<20,000. = Detected but at a level less than the quantitation limit. (Numerical values is the quantitation limit.)</p>

Sworn to and subscribed before me this 6th day of February, 1986

My commission expires January 16, 1988

Notary Puetto

Approved by

Laboratory Manager







5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO. IT Curporation

ATTN: Cliff Vaughan 312 Directors Drive Knoxville, TN 37923 DATE REPORTED

February 6. 1986

PROJECT CODE:

ITEK 21683

ORDER NUMBER:

TN Contract FA-1353

Sample Description: Kennon Site Pit B, Grab Soil, 1-22-86, 11:30

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	3,300.
acrylonitrile	ND	trans-1,2-dichloroethene	1,300.
benzene	1,000.	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	МD
bromoform	ND	trans-1,3-dichloropropene	DИ
bromomethane	ND	ethyl benzene	19,000.
carbon tetrachloride	ND	methylene chloride	3,300.
chlorobenzene	530.	1,1,2,2-tetrachloroethane	ND
chloroethane	ND	tetrachloroethene	220,000.
2-chloroethylvinyl ether	ND	toluene	6,200,000.
chloroform	<250.	1,1,1-trichloroethane	160,000.
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	6,900.
1,1-dichloroethane	950.	vinyl chloride	ND
1,2-dichloroethane	11,000.	-	

Remarks: ND = Not detected.

<250. = Detected but at a level less than the quantitation limit. (Numerical values is the quantitation limit.)</pre>

Sworn to and subscribed before me this 6th day of February, 1986

My commission expires January 16, 1988

Notary Public

Approved 1

Laboratory Manager





5815 Middlebroth Pike * Knoxville Tennesso: 3/921 * 6/3 004/4

CERTIFICATE OF ANALYSIS

TO: IT Corporation

ATTN: Cliff Vaughan 312 Directors Drive Knoxville, TN 37923 DATE REPORTED PROJECT CODE ORDER NUMBER

February 10, 1986

178K 21702

TR Contract FA-1315

Sample Description:

Two (2) water samples and one (1) soil sample received

January 29, 1986

Concentration units are mg/liter (ppm) unless otherwise stated

PRIORITY POLLUTANT METALS

Kennon Site, 3-28-86 Field #4 1994 #3, Seep Field #3, Seep (sell) 10:30 Hackett Spring 9:15 (water) 10:30 /ur dram, ppm) <0.001 <0.002* <0.05 Antimony <0.001 0.217 18. Arsenic Beryllium <0.002 0.010 0.69 <0.001 <0.03 Cadmium <0.001 Chromium <0.01 0.15 9.3 <0.002 0.088 6.5 Copper 7.6 <0.01 0.12 Lead <0.001 <0.001 0.048 Mencury <0.01 8.3 Nickel <0.01 Selenium <0.001 <0.03* <0.3* <0.002 <0.1 <0.002 Silver Thallium <0.02 <0.02 <0.6 0.519 <0.001 Zinc 30. 0.20 Cyanide <0.01 0.01

Copy to: Ronni

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Ronnie Bowers

Tennessee Department of Health & Environment

Division of Solid Waste Management

701 Broadway Street, 4th Floor Customs House

Nashville, TN 37219-5403

Swom to and subscribed before me this 10th and of February, 1986

My commission expires January 16, 1988

Apriled by

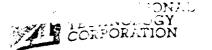
1.15

<u>Laboratory Director</u>

Title

Notary Public

^{*} Detection limits higher than normal due to sample matrix interferences.



AD AD TO SAL

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REFORTED PROJECT CODE: ORDER NUMBER:

February 10, 1986 ITEK 21702 TN Contract FA-1353

Sample Description: Kennon Site, Field #1, Hackett Spring, 1-28-86, 9:15

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (pph)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	СИ
acrylonitrile	ND	trans-1,2-dichloroethene	10.
benzene	СИ	1.2-dichloropropane	CM
bromodichloromethane	מא	cis-1,3-dichloropropene	CA
bromoform	СИ	trans-1,3-dichloropropene	CM
bromomethane	ND	ethyl benzene	t/D
carbon tetrachloride	GN	methylene chloride	МĎ
chlorobenzene	CIA	1,1,2,2-tetrachloroethane	KD
chloroethane	СИ	tetrachloroethene	MD
2-chloroethylvinyl ether	ND	toluene	KĐ
chloroform	CA CA	1,1,1-trichloroethane	ND
chloromethane	CN	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	ND
1,1-dichloroethane	<10.	vinyl chloride	ND
1.2-dichloroethane	ND.	Trigit cirror rac	.10

Remarks: ND = Not detected.

<10. = Detected but at a level less than the quantitation limit. (Numerical value

is the quantitation limit.)

Copy to: Ronnie Bowers

Tennessee Department of Health & Environment

Division of Solid Waste Management

701 Broadway Street, 4th Floor Sustams House

Nashville, TN 37219-5403

Sworn to and subscribed before me this 10th aay of February, 1986

My commission expires January 16, 1988

Notary Public

Archinoxed by

Laboratory Director



5815 Middlet

Tennesting (T921 • 615-588-6401

OF ANY LYSIS

TO. IT Corporation ATTN: Cliff Vaughan 312 Directors Enlive Knoxville, TN 37923 DATE REPORTED FROJECT CODE: ONE DE NUMBER:

February 11, 1986

ITEK 21765

TN Contract FA-1363

Job #41504

Sample Description: Kennon Stte, Hacket Inning, Field #1, 2-7-86, 9:00

VOLATILE ORGANIC FIJORITY POLLUTANT ANALYSIS

С ото ои п д	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	ND
acrylonitrile	ND	trans-1,2-dichloroethene	70.
benzene	ND	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ИD
bromomethane	ND	ethyl benzene	ND
carbon tetrachloride	ND	methylane chloride	GM
chlorobenzene	ND	1,1,2,2-tetrachloroethane	ИD
chloroethane	<10.	tetrachloroethene	СИ
1-cmloroethylvinyl ether	ND	eneufor	ND
c: Coroform	ND	<pre>1,1,1-trichloroethane</pre>	13.
chloromethane	ND	1,1,2-trichloroethame	GN
dibromochioromethane	ND	trichloroethene	<10.
1,1-dichloroethane	26.	vinyl chloride	ND
1,2-dichloroethane	<10.		

Remarks: ND = Not detected.

<10. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation 14 mig.)

Copy to: Ronnie Bowers

Tennessee Department of Health & Environment

Division of Solid Waste Management

701 Broadway Strest. Ith Floor Suctoms House

Nashville, TN 37218-5403

Swom to and subscribed	before me this	1. 3 m in
day of Febr	yary, 1986	
My commission expires _	January	<u>15. 1938</u>
muer	9 1/24	

Laboratory Manager

Tilli€

ATTA I

Earl Endiddiebrack Pike • Frank E. Tenrica He 37921 • 615-586-6401



CERTIFICATE OF ARALYSIS

TO: IT Composition

ATTN: Cliff Vaughan 512 Directors Drive Knoxville, TN 57923 IN TE REPORTED:

February 26, 1985

H. DJECT CODE:

ITEK 21854

ORLER NUMBER: TN Contract FA-1353

Sample Description: Kennon Site, Field #17, Well #8, 2-21-86, 10:30

VOLATILE ORGANIC PRIGRITY POLLUTANT ANALYSIS

Compound	Concentration (pph)	Сотроина	Concentration (ppb)
acrolein acrylonitrile benzene bromodichloromethane bromoform bromomethane carbon tetrachloride chlorobenzene chloroethane 2-chloroethylvinyl ether chloroform chloromethane dibromochloromethane 1.1-dichloroethane	ND ND ND ND ND ND ND ND ND ND ND ND ND N	1,1-dichloroethene trans-1,2-dichloroethene 1,2-dichloropropane cis-1,3-dichloropropene trans-1,3-dichloropropene ethyl benzene metnylene chloride 1,1,2,2-tetrachloroethane	13. 350. ND ND ND <10. <10. <10. 1,600.
1,2-dichloroethane	22. <i>u</i>		

Remarks: ND = Not datected.

<10. = Detected but at a level less than the quantitation limit. (Numerical value
is the quantitation limit.)</pre>

Copy to: Ronnie Bowers

Tennesses Department of Health & Environment

Division of Iolid Waste Management

701 Encadway Street, 4th Floor Customs House

Nashville, TN 37215-5403

Sworn to and subscribed before me this 26th day of February, 1986

My commission expires Using 15, 1988

Notary Public

Aptroved by



5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401



CERTIFICATE OF ANALYSIS

TO: IT Corporation ATTN: Cliff Vaughan 312 Directors Drive Knoxville, TN 37923

February 21, 1986 DATE REPORTED:

ITEK 21797 PROJECT CODE

TN Contract FA-1353 ORDER NUMBER.

Sample Description: Field #4, Kennon Site, Johnson Well, 2-16-86, 4:00

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentratión (ppb)	Compound	Concentration (ppb)
acrolein	ИО	1,1-dichloroethene .	ND
acrylonitrile	ND	trans-1,2-dichloroethene	ND
benzene	ND	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	. ND
bromomethane	ND	ethyl benzene	ND
carbon tetrachloride	ND	· methylene chloride	ND
chlorobenzene	ND	1,1,2,2-tetrachloroethane	ND
chloroethane	ND	tetrachloroethene	ND
2-chloroethylvinyl ether	ND	toluene	ND
chloroform	ND	1,1,1-trichloroethane	ND
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	В	trichloroethene	ND
1,1-dichloroethane	ND	vinyl chloride	ND
1,2-dichloroethane	ND		_

Remarks: ND = Not detected.

<10. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

Copy to: Ronnie Bowers

Tennessee Department of Health & Environment

Division of Solid Waste Management

701 Broadway Street, 4th Floor Customs House

Nashville, TN 37219-5403

Sworn to and subscribed before me th February, 1986

January

Approved by

Laboratory Manager

Tule

Notary Public





5815 Middlebrook Pike • Knoxville, Tennessed 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: IT Corporation

Alin: Cliff Vaughan 312 Directors Drive Knoxville, TN 37923 DATE REPORTED: PROJECT CODE:

February 6, 1986

ITEK 21683

ORDER NUMBER: TN Contract FA-1353

Sample Description: Kennon Site Pit B, Grab Soil, 1-22-86, 11:30

PESTICIDES AND PCB's - PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppm)	Compound	Concentration (ppm)
aldrin	ND	endrin aldehyde	ND
α-BHC	ND	heptachlor	ND
β-BHC	ND	heptachlor epoxide	ND
γ-BHC (lindane)	ND	PCB-(Aroclor)-1242	ND
δ-BHC	ND	PCB-(Aroclor)-1254	ND
chlordane	ND	PCB-(Aroclor)-1221	ND
4,4'-DDT	ND	PCB-(Aroclor)-1232	ND
4,4'-DDE	ND	PCB-(Aroclor)-1248	ND
4,4'-DDD	ND	PCB-(Aroclor)-1260	П
dieldrin	. ND	PCB-(Aroclor)-1016	ND
α-endosulfan	ND	toxaphene	ND
β-endosulfan	ND	methoxychlor	ND
endosulfan sulfate	ND	·	
endrin	ND		

Remarks: ND = Not detected at a level of 1.0 ppm (parts per million).

Sworn to and subscribed before me this 6th

day of <u>February</u>, 1986

and another before and statement in the best of the second of the second second second and the second secon

My commission expires January 16, 1988

Notary Public

5 // 1/

Title

Laboratory Manager

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LYTC. .. SURVICES

ра стра - Ріке • Knaxville, Tennesse: 17921 • 615 588-6401

CERTIFICATE OF ANALYSIS

TO IT Componation ATTN: Cliff Vauctian Ul2 Directors Drive Knoxville, TN 27113 DATE PEPORTED: March 25, 1986

PROJ. OT CODE. ITEK 22002

ORLEI NUMBER: TN Contract FA-1353

Sample Description: Kennon Site, Hackett Spring, 3-13-86, 2:00

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

C omp ound	Concentration (ppb)	Compund	Concentration (pt/2)
acrolein	ND	l,l-dichloroethene	ND
acrylonitrile	ND	trans-1.2-dichloroethene	65.
benzene	ND	1,2-dichioropropane	NO
promodichloromethane	ND	cís-1.3-dichloropropene	113
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	110
carbon tetrachloride	ND	methylere chloride	HD.
chlorobenzene	ND	1,1,2,2-tetrachloroethane	115
chloroethane	<10.	tetrach) oroethene	МD
2-chloroethylvinyl ether	ND	toluene	100
or aroform	ND	1.1.1-trichloroethane	22.
cm.oremane	ND	1,1,2-trichloroethane	RD
dibromochloromethane	ND	trichlorpethene	<10.
1,1-dichloroethane	26.	vinyl chioride	KD
1,2-dichloroethane	<10.	ř	

Remarks: ND = Not detected.

<10. = Detected but at a level less than the quantitation limit. (Numerical value is the cuantitation limit.)

Copy to: Ronnie Bowers

Tennessee Decartment of Health & Environment

Division of Solid Waste Management

701 Broadway Street, 4th Floor Customs House Washville, TX 37219-5403

Swom to and subscribed before the third Carriary. My complission expires Notory Func

Laboratory Manager

8.647.1 P.F.OXVIIIE. Ģ SETT MACKETTO

SIS 1777 [L]E DIEIC

IT Corporation ATTN: Cliff Vaughan 312 Directors Drive Knoxville, TN 37923 Ü

April 1, 19 17EK 22038 77 Contract Job #409374 DATE NOT ONTED PROCESS ON THE STATE OF THE S

ŧΩ ~+ <u>(,)</u> 3-15-86, Rackett Site, Kennon **‡**61, Field Description: Sample

ORGANIC PRIORITY POLLUTANT ANALYSI VOLATILE VOLATILE

0

Compound	Concentration (pph)	Compound	Concentration (post)
	GM] - I - dichloraethene	ey.
	2	trans-1,2-0;ch]oroethene	7.5
1 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	2	1.2-dichloropropene	CX
bromedichloromethane	9	cis-1, S-ctchloropropene	en Te
bromoform	5	trans-1,8-dichloropropene	5
bromomethane	9	ethy] bentase	2
carbon tetrachloride	9	methylene caloride	ci V
Chlorobenzene	2	l.l.Z.Z-tetrachloroethane	2
chloroethane	<10.	tetrachlorosthene	<u>유</u>
2-chloroethylvinyl ether	웊	to]uene	2
crionoform	윤	I, I. 1-trienionoctheme	, 1
CI Oromethane	2	I. I. 2-trick oroethane	17
dipromochloromethane	9	trichloroethene	• ○ ○
1,1-dichloroethane	24.	vinyl chloride	£
1,2-dichloroethane	2		

(Numerical value cuentitation limit. the than Not detected. Detected but at a level less is the quantitation limit.) 20 Remarks:

Ronnie Bowers Tennessee Department of Health & Environment Division of Solid Waste Management 701 Brosoway Street, 4th Floor Customs House Nashville, TN S7219-5403 ; ;

3851 4.7 1/1 1-4 Swam to and subsanced before me this Annal of Annal 1996 <u>ลาบลก</u>y My commission expires ದೆವ್ಯ ಲ

aboratory Manage Approved ay

Tue

LYTICAL RVICES

5815 Middlebrook Pike • F. F. Ville, Tennessee 37921 • 615 (+3-6401

CERTIFICATE OF ANALYSIS

TO: IT Corporation

ATTN: Cliff Vaughan 312 Directors Drive Knoxville, TN 37923 DATE REPORTED:

Gune 10, 1986

PROJECT CODE: ORDER NUMBER:

ITEK 22457 IN Contract FA+1353

PAGE_____5__ OF ____5

Job #409374.01.71.59

Sample Description: Kennon Site, Field #99, Genesco Well #9, 5-31-86, 9:40

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

<u>Compound</u>	Concentration (ppb)	Compound	Concentration (pph)
benzene	ND	1,1-dichloroethene	СИ
bromodichloromethane	СИ	trans-1,2-dichloroethene	2,000.
bromoform	МD	1,2-dichloropropase	ND
bromomethane	ND	cis-1,3-dichloropropene	GM
carbon tetrachloride	СМ	trans-1,3-dichloropropene	СИ
chlorobenzene	ND	ethyl benzene	ND
chloroethane	1,200.	methylene chloride	G/I
2-chloroethylvinyl ether	GM	1,1,2,2-tetrachloroethane	GN
chloroform	ND	tetrachloroethene	ND
chloromethane	ND	toluene	39,000.
dibromochloromethane	CM	1,1,1-trichloroethane	<1,000.
1.1-dichloroethane	1,600.	1,1,2-trichloroethane	GA
1,2-dichloroethane	<1,000.	trichloroethene	ND
,	-	vinyl chloride	ND

Remarks: ND = Not detected.

<1,000. = Detected but at a level less than the quantitation limit. (Numerical value

is the quantitation limit.)

Copy to: Ronnie Bowers

Tennessee Department of Health & Environment

Division of Solid Waste Management

701 Broadway Street, 4th Ficor Customs House

Nashville, TN 37219-5403

Sworn to and subscribed before me this 10th
day of June, 1986

My commission expires January 16, 1988

Approved by

Laboratory Manager

Title



Notary Public



5815 Middlebrook Pike • Knoxvike Tennessee 37901 • 615-583-6451

CERTIFICATE OF ANALYSIS

IT Corporation TO: ATTN: Cliff Vaughan 312 Directors Drive Knoxville, TN 37923 DATE REPORTED PROJECT CODE. ORDER NUMBER. February 10, 1986 ITEK 21702 TN Contract FA-1353

Sample Description: Two (2) water samples and one (1) soil sample received

January 29, 1986

Concentration units are mg/liter (ppm) unless otherwise stated

PRIORITY POLLUTANT METALS

Kennon Site, 1-28-86 Field #1 Field #3. Seep Hackett Spring Field #3, Seep (soil) 10:30 9:15 (water) 10:30 (ug/gram, ppm) <0.001 <0.002* Antimony <0.05 <0.001 Arsenic 0.217 18. Beryllium <0.002 0.010 0.69 Cadmium <0.001 <0.001 <0.03 <0.01 0.15 9.3 Chromium <0.002 0.088 6.5 Copper 0.12 <0.01 7.6 Lead <0.001 <0.001 0.048 Mercury <0.01 <0.01 8.3 Nickel Selenium <0.001 <0.03* <0.3* <0.002 <0.002 <0.1 Silver Thallium <0.02 <0.02 <0.6 30. 0.519 <0.001 Zinc Cyanide < 0.01 0.01 0.20

Copy to: Ronnie Bowers

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Tennessee Department of Health & Environment

Division of Solid Waste Management

701 Broadway Street, 4th Floor Customs House

Nashville, TN 37219-5403

Sworn to and subscribed	i betare me this1	<u>Oth</u>
egy ofFeh	ruary, 1986	
My commission expires	January 16,	1988
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Laboratory Director



^{*} Detection limits higher than normal due to sample matrix interferences.



5815 Middlebrook Pike • Knoxville Tennessee 379.1 • 615 586 6461



IT Corporation TO

ATTN: Cliff Vaughan 312 Directors Drive Knoxville, TN 37923 DATE REPORTED PROJECT CODE February 6, 1986 ITEK 21683

TN Contract FA- 1353 ORDER NUMBER

A STATE OF THE POST OF THE POS

Sample Description: Two (2) soil samples and one (1) waste sample received

January 24, 1986

Concentration units are µg/gram (ppm)

PRIORITY POLLUTANT METALS

	Grab Waste Pit B 1-22-86, 11:30	Pit A 1-22-85, 1:30	Pit B 1-22-86, 11:30
Antimony Arsenic	0.10 <0.1	<0.1 9.0	<0.1 9.0
Beryllium	<0.1	1.2	1.1
Cadmium	0.25	<0.1	<0.1
Chromium	14.	14.	14.
Copper	0.80	7.5	4 _ 4
Lead	1.2	8.0	8.2
Mercury	<0.1	<0.1	0.12
Nickel	<0.7	11.	7.3
Selenium	<0.8	<1.	<1.
Silver	<0.1	<0.2	<0.2
Thallium	_<1.	<2.	<2.
Zinc	560.	33.	37.
Total Cyanide	0.07	0.10	0.26

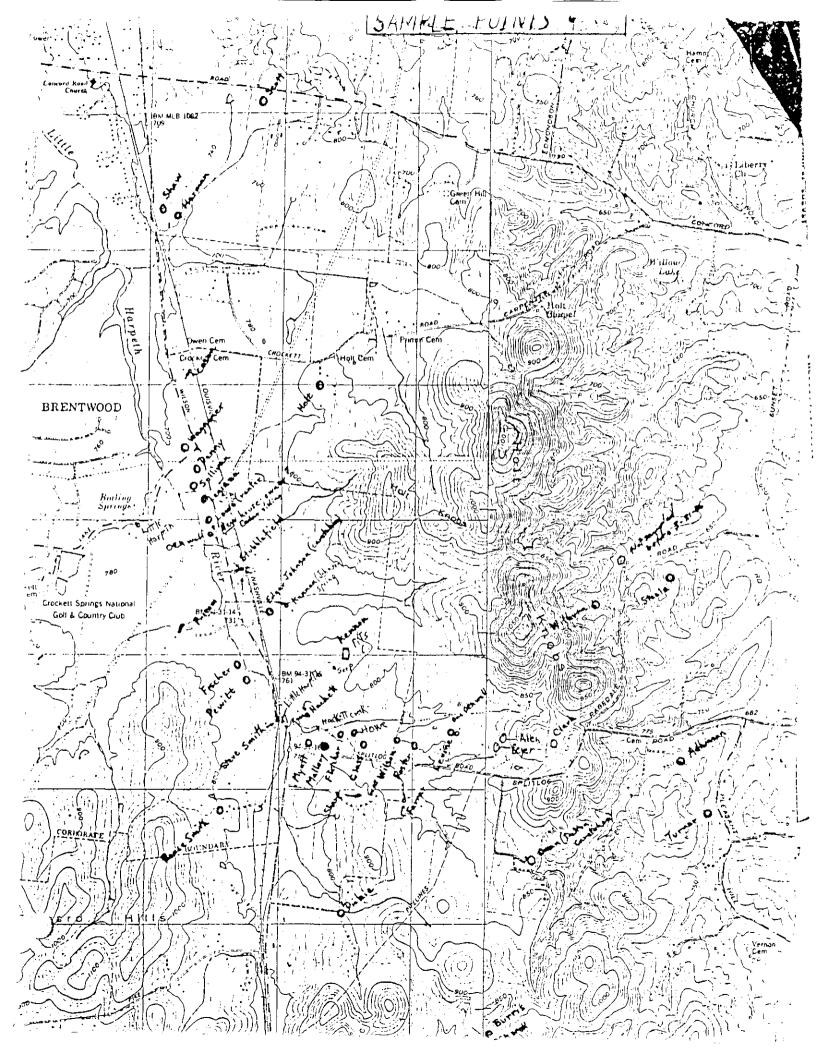
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	ary, 1986		
My commission expires	January	16,	1988

Notary Public

Laboratory Manager



93-9-85



KENNON SITE

Site No. TND 981473575

Reference No. 2

1

Plan for Investigation of the Kennon Site, Brentwood, Tennessee

Prepared for

GENESCO, INC. Nashville, Tennessee

December 1986

PROJECT # 01088BR1

GERAGHTY & MILLER, INC.
Ground-Water Consultants
140 East Division Road, Building A, Suite 2
Oak Ridge, Tennessee 37830

GERAGHTY & MILLER, INC.

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GERAGHTY & MILLER, INC.

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INTRODUCTION

In June of 1986, Geraghty & Miller, Inc. (G&M) was retained by Genesco, Inc. (Genesco) to conduct a ground-water investigation of the Kennon site in Brentwood, Tennessee, where approximately 800 barrels of industrial waste materials were disposed. Preliminary investigations have been made by Genesco and their consultants, Geologic Associates (GA), and the State Superfund Division of the Tennessee Department of Health and Environment (TDHE). In addition, the U. S. Geological Survey (USGS) is presently conducting a regional study of the area.

From this work, areas of waste disposal have been approximately delineated, a network of shallow monitor wells has been installed and sampled to determine the possible distribution of disposed substances in the surficial soil and shallow bedrock aquifer. Area domestic wells and springs have also been sampled to determine possible off-site migration of contaminants. However, additional data are needed to further delineate the disposal pit areas and shallow plume, and to characterize the deeper hydrogeologic system and determine whether any contamination of the deeper bedrock aquifer has occurred.

This plan sets forth a program of additional remote sensing, test boring, monitor well installation, and soil and water sampling, which, when implemented, will provide better understanding of the shallow and deeper ground-water flow

GERAGHTY & MILLER, INC.

system and the extent of possible contamination, and will provide the basis for a hazard evaluation and the design of remedial measures. TDHE will be notified in advance of any additions, deletions or changes to the proposed work plan. Seven days advance notice will be given to TDHE of the initiation of work at the site.

BACKGROUND

General Setting and Site History

Farming and Residential Development

The Kennon property is located in a rural part of Williamson County in which livestock is the most important farming commodity. Cash crops include tobacco, hay, corn, and small grains (U.S. Soil Conservation Service, 1961). The fenced tract containing the disposal area is currently used as a pasture for cattle. It is not known whether the tract has ever been cultivated or whether fertilizers or pesticides have ever been applied to this or adjoining tracts.

A number of old farmhouses are located in the Wilson Pike/Split Log Road area. In addition, several new residences have been constructed over the past five years. Most of the new homes are situated on four to ten acre tracts.

Residential water needs have historically been supplied by individual wells, springs, and cisterns. Domestic wells in the area are generally cased 20 to 25 feet (ft) into the bedrock with an unscreened open hole extending to depths of a few hundred feet to more than 2000 ft. Construction data for individual domestic wells are summarized in Table 1. Locations of area domestic water supply wells and springs are shown in Figure 1. State records have been searched for

TABLE 1

AILLER, INC.																							
CONSTRUCTION & STATUS OF DOMESTIC WELLS	DRILLER			Henry Drilling Co.	Henry Drilling Co.	Henry Drilling Co.	Henry Drilling Co.	Henry Drilling Co.	Henry Drilling Co.	Henry Drilling Co.			Henry Drilling Co.								Herman Clark Water Wells		Henry Drilling Co.
	STATUS	Fesidential	Residential	Residential	Residential	Residential	Residential	Residential	Heat Pump	Residential	Residential	Residential	Residential	Residential	Residential	Residential		Residential	Residential	Non-Potable	Pesidential	Residential	Residential
	PRINCIPLE WATER BEARING ZONE (DEPTH FT)		195	1020	277	70,110	115-117	23, 115-116	146	230	65	36	80	130	184	1170		18	28	112	105	28	160
	OPEN INTERVAL FORMATION		B,H,C	H, L, R, P, M, K	H,C,L	H,C,L	H,C,L	H,C,L	H,C,L	H,C,L.R	x	an.	н,с,г	H,C,L	н,с	H,C,L,R,P,M,K	H,C,L,R,P,N,K	***		H,C,L,R	n,c		B,H,C
CONSTRUC	TOTAL DEPTH (FT)	68-80	200	1050	350	240	200	198	260	450	75	36	400	220	198	1235	2200	73		350	105		260
	DEPTH OF CASING (FT)		20	20	21	21	-		20	21	20	25	24		20	22					21		21
	CASING DIAM. (IN)		7	6.25	6.25	6,25			6.25	6,25	9	9	6.25		9	9					6.25		6.25
	DATE CONPLETED		04/05/69	08/14/85	10/18/84	06/27/84			08/08/85	05/22/84	06/04/70		03/03/86		12/30/72	08/17/74					09/16/81		02/28/84
	WELL	Allen	Bever	Boswell	Denny	Fischer	Fletcher (1)	Fletcher (2)	Foster (1)	Foster (2)	ಲ್ವ	Holt	11311	Howe	Johnson	4 Levine (1)	Levine (2)	Myatt	Legieza	Milory	Powitt	Sullivan	Wilson

Information Provided by TIME, Division of Ground Water Protection.

R = Ridley Formation
P = Pieroe Formation
M = Murfreesboro Formation
K = Knox Group

B = Bigby-Canron Formation H = Hermitage Formation C = Carters Formation L - Lebanon Formation Geraghty & Miller, Inc. POA0 CROCKETT EGIEZA STUBBLEFIELD, STUBBLEFIELD AND YOUNGER SPRING NOSNHOL WILSON MYATT SPLITLOG EXPLANATION DISPOSAL SITE SUPPLY WELL SPRING INFORMATION PROVIDED BY CITY OF BRENTWOOD DOMESTIC WELLS AND SPRINGS IN THE VICINITY OF THE KENNON SITE

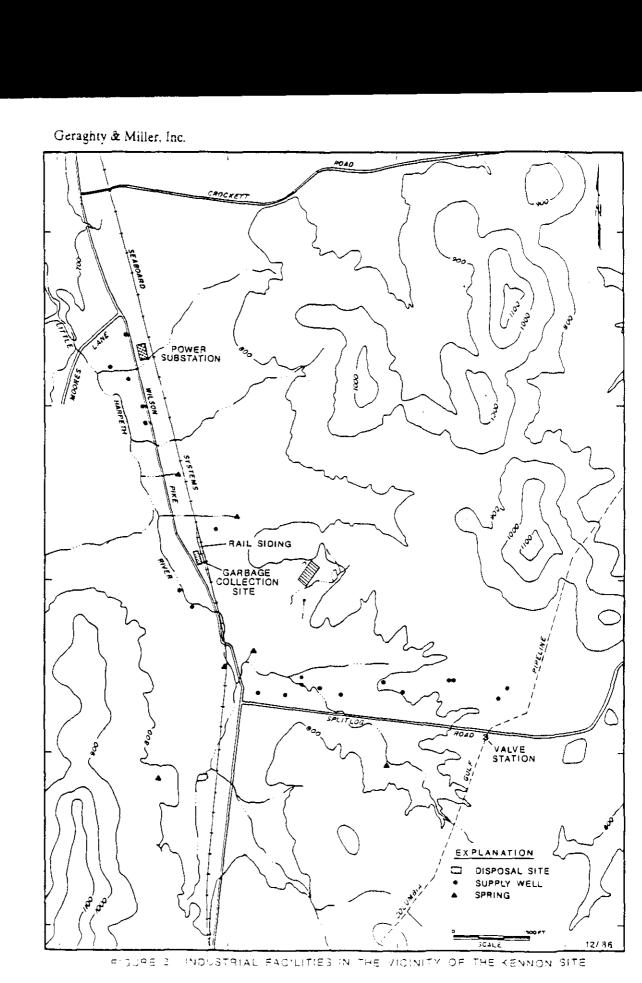
additional wells in the vicinity that may be abandoned and none have been found. Aerial photographs from 1946, 1967, 1969, 1976, and 1980 do not show any old farm houses which may have had wells other than those listed in Table 1. A water main from the City of Brentwood is being constructed to serve the residents along part of Wilson Pike and Split Log Road.

Septic tanks and leach fields are used for disposal of domestic waste-water in the area. State regulations require that leach fields be located a minimum of 50 ft from wells and springs which serve as domestic water supplies; septic tanks may be located closer than 50 ft to domestic wells and springs.

Industrial Facilities

An electrical power substation is located on Wilson Pike just south of Moore's Lane (Figure 2). It was constructed around 1981 by TVA and is operated by Middle Tennessee Electric Co-op, which provides electric service to the area. One transformer is currently in operation to convert 161 kilovolt power from the TVA Power line to 14 kilovolt power which is distributed to local users.

Seaboard Systems Railroad owns and operates a line that follows the western boundary of the Kennon property (Figure 2). This track was formerly operated by the Louisville and Nashville Railroad, Lewisburg Division, and has been in



service since approximately 1914. The Moran Rail Siding, consisting of a passing track and a public team track, is located near the Johnson residence. Rail sidings such as this are commonly used for loading, for car and equipment repairs, and as laydown areas for materials. No records of spills or derailments are available from either the Nashville office of Seaboard Systems or from the Federal Railroad Administration. Records at those offices are reportedly kept on file for one year and then destroyed.

Three natural gas pipelines pass to the south and east of Brentwood and cross Split Log Road about 4,500 ft southeast of the Kennon Site (Figure 2). One 36-inch (in)-diameter and two 30-in-diameter lines, operated by Columbia Gulf Transmission Company, transport Southern Louisiana and Louisiana offshore natural gas northward for distribution by Columbia Gas Companies. A valve station, for isolating sections of pipeline, is located just south of Split Log Road.

For four years the Williamson County Landfill Division has operated a garbage collection site south of Moore's Lane, between the railroad and Wilson Pike (Figure 2). The site contains two to five dumpsters, where local residents may dispose of garbage. The facility is intended for domestic garbage only; however, it is not manned and there is no way to insure that small amounts of industrial waste or hazardous household and farm wastes are not disposed.

Phosphate Mining

The phosphate mined in Williamson County is of the brown type, which is the most economically important type of phosphate ore in Tennessee. It occurs in the western part of the Central Basin physiographic region and is associated with certain phosphate-rich Ordovician Period limestones. (Smith and Whitlatch, 1940).

The brown phosphate deposits in the Franklin area occur as rim deposits around hillsides, formed as weathering residuum of Ordovician Bigby-Cannon and Hermitage Formation limestones. Low-grade phosphate ore was strip-mined by drag lines or bulldozers in this area. The ore was washed and processed off-site to obtain high-grade elemental phosphorus.

Phosphate mining in Tennessee is regulated by the Department of Conservation. The permitting process, in operation since 1972, includes submission of a reclamation plan and a bond which is released after reclamation is approved, as well as documentation of land ownership and other details such as location, acreage and surface drainage.

Phosphate was mined from the Kennon Property between November 1972 and April 1974, by Monsanto Industrial Chemicals Company. A total of 20 acres were permitted to be mined and an additional two acres were permitted as an access road. According to TDHE records, a total of eight acres were actually disturbed (Figure 3). Low-grade phosphate deposits

Geraghty & Miller, Inc. EXPLANATION DISPOSAL SITE SUPPLY WELL SPRING MINED AREA INFORMATION PROVIDED BY TDHE, DIVISION OF WATER POLLUTION CONTROL. OTHER MINERALS SECTION FIGURE 3. AREAS MINED FOR PHOSPHATE BY MONSANTO FROM 1972-1974

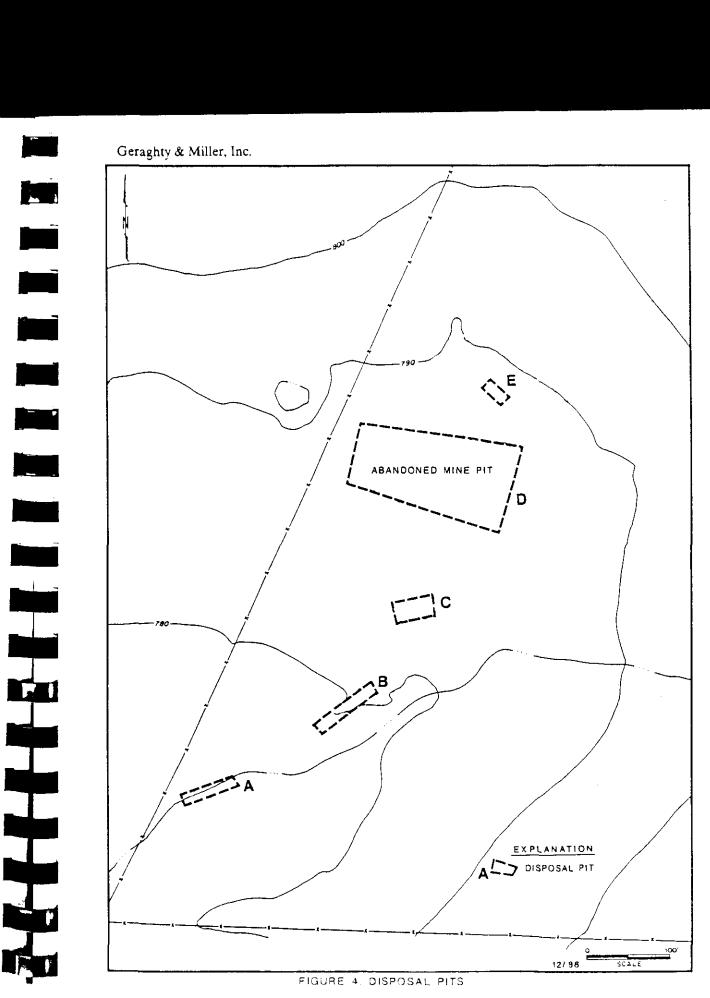
as much as 15 ft thick, occurring as weathering residuum of the Bigby-Cannon limestone, were mined from the property. Reclamation consisted of grading and sowing the area in fescue and rye. The bond for mining of the Kennon property was released in April 1974, when reclamation was considered complete; however, a small mine pit was left unfilled and was later used for disposal of industrial wastes.

It is not clear why the mine pit used for waste disposal at the Kennon Site was left unreclaimed. Correspondence between Monsanto and the State of Tennessee suggest that the mining of that pit was followed by an unusually rainy period which inhibited reclamation. Reclamation of the site was approved after a site inspection by TDHE in September 1973.

Waste Disposal at the Kennon Site

For a short period during the late summer and fall of 1978, industrial waste from General Adhesives, a division of Genesco, was disposed of in pits on the Kennon site. Approximately 800 barrels of waste, primarily from the cleaning of kettles used in the production of adhesives and caulking compounds, was disposed of at the Kennon site. Approximately 50 to 80 barrels containing waste were buried in the disposal pits.

Initially wastes were poured into the abandoned phosphate mine pit, (Pit D) shown on Figure 4. When this pit was filled, four additional disposal trenches (Pits A, B, C,



and E) were excavated to a depth of about 6 ft with a bulldozer at the approximate locations shown in Figure 4. The disposal pits were left open for a short period to allow for evaporation and then were covered with soil and graded.

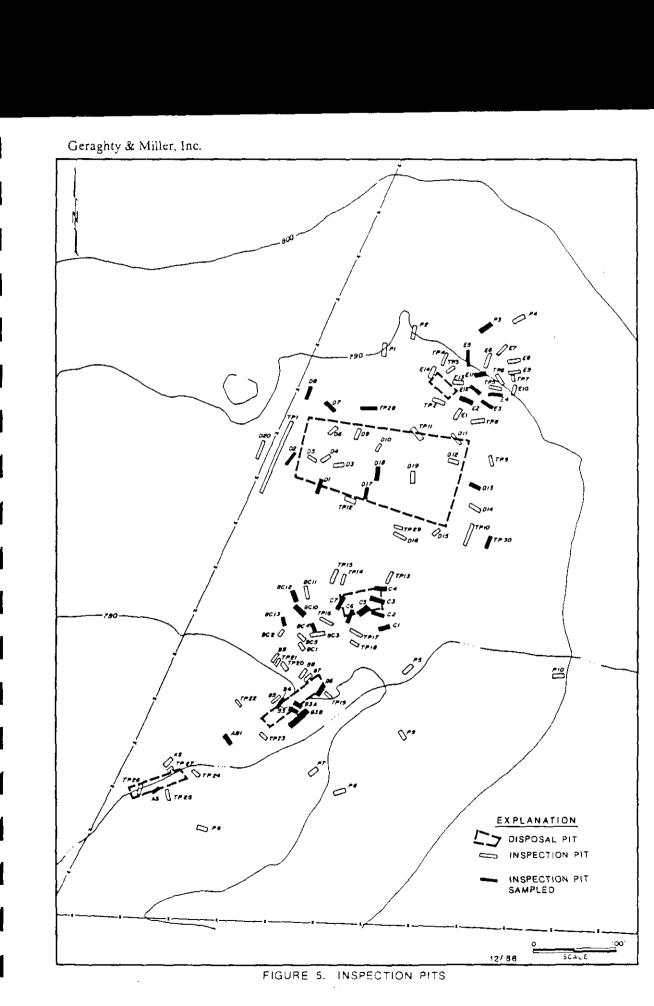
Previous and Ongoing Work

Initial Fact-Finding by Genesco

During May 1985, the present management of Genesco learned of the 1978 waste disposal at the Kennon site. Genesco promptly notified TDHE and began an investigation to determine the extent of contamination. The areas of the disposal pits shown in Figure 4 were delineated from the recollections of the landowner's bulldozer operator who was responsible for excavation of the trenches. It was determined that the major components of the waste were water-soluble adhesives, acetone, ethyl acetate, hexane, methylene chloride, methyl ethyl ketone, rubber solvent, toluene, 1,1,1 trichloroethane, trichloroethylene, and organic fillers.

Inspection Pit Sampling

During January 1986, 101 inspection pits were excavated with a backhoe in and around the disposal area to verify and more precisely delineate the areas of the disposal pits (Figure 5). Samples of water, soil, and sludge were collected from 36 of the pits by personnel from TDHE and GA. Samples were taken from only those pits where sludge, metal drums or ground-water seepage were found. Samples collected by TDHE were analyzed for full priority pollutants and those collected by GA were analyzed for priority pollutant volatile organic compounds (VOCs). TDHE also sampled water and soil



from an on-site seep, the location of which is shown in Figure 6. A total of 31 organic chemical compounds were detected on-site. Results of chemical analyses from this phase of work are presented in Appendix A.

Off-Site Sampling

Off-site domestic wells and springs in the area have been sampled by TDHE and analyzed for priority pollutants, the results of which are included in Appendix B. Traces of organic compounds were detected in seven wells and one spring. In four of the wells only chloroform, bromodichloromethane and dibromochloromethane (Trihalomethanes) were found, and only in trace amounts. Trihalomethanes are commonly present in chlorinated water supplies. Small concentrations οf organic compounds other than trihalomethanes were found in three wells (Mallory, Legieza, and Fletcher) and one spring (Hackett). The Fletcher well was found to contain a trace of bis(2-ethylhexyl)phthalate in only one of four samples. This substance is commonly found in association with plastics such as PVC. Substances found were within limitations allowed by the Safe Drinking Water Act. Occurrences of unexplained organics are shown in Figure Samples of surface runoff from the Kennon site were collected by TDHE on March 13, 1986, and from the Little Harpeth River on February 14 and 25, 1986, at locations shown No hazardous substances were found in these in Figure 8. samples. Analytical results of this sampling are included in Appendix C.

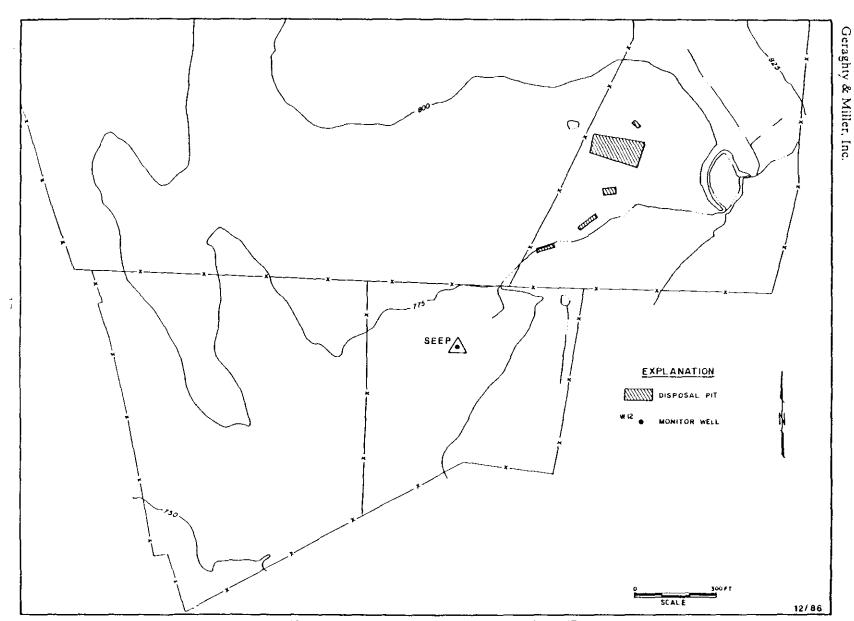
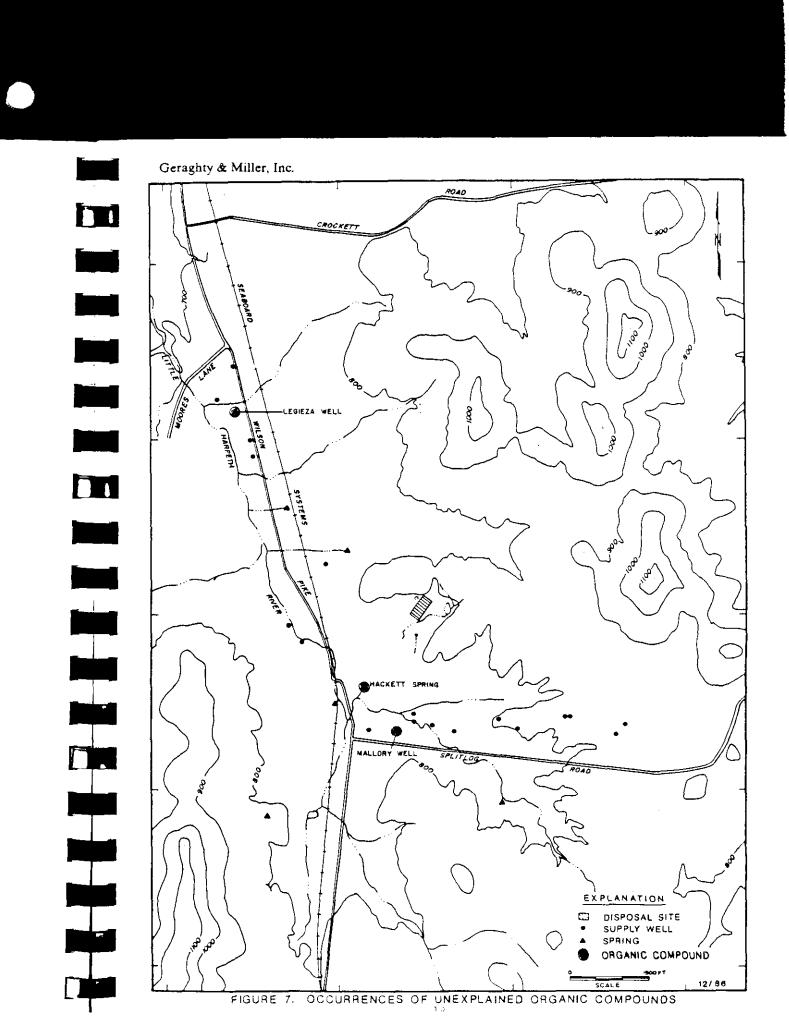
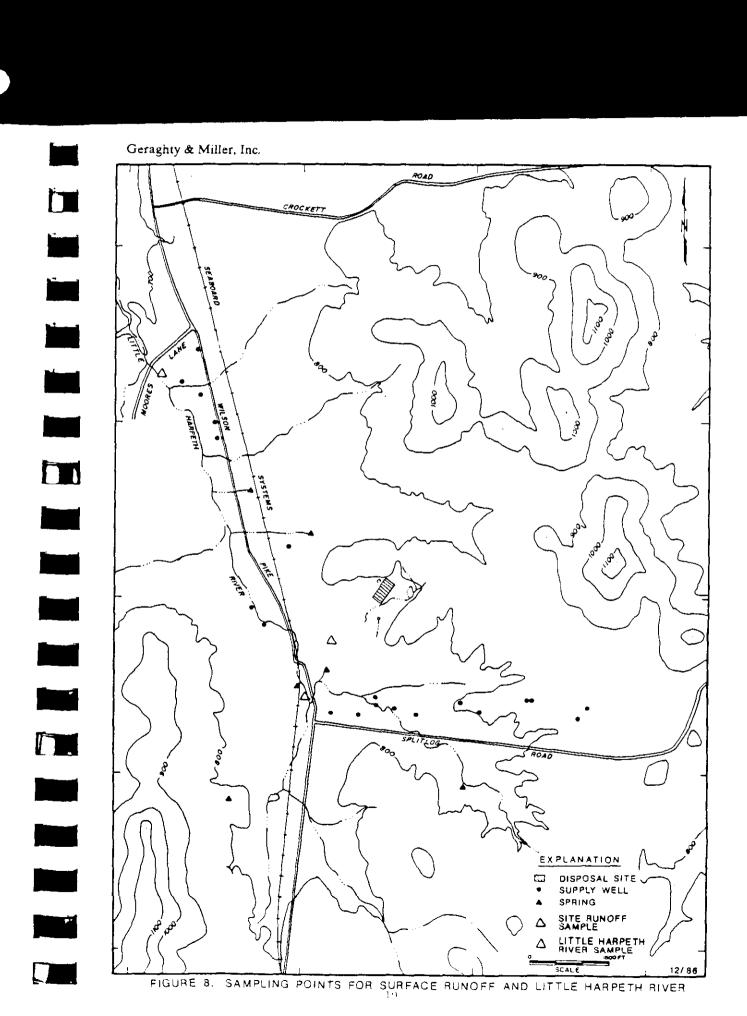


FIGURE 6. ON-SITE SEEP SAMPLED BY TOHE





On-Site Monitor Well Installation and Sampling

Thirty shallow 2-in-diameter PVC monitor wells were constructed on-site by GA between January and March 1986. The first ten wells, designated PZ-1 through PZ-9 and PZ-7A were installed as piezometers to monitor ground-water levels. Wells W-10 through W-29 were installed to monitor groundwater quality in the vicinity of the disposal site. Subsequently the PZ wells have been included in the water quality sampling network. As shown in Figure 9, most of the wells are located in a drainage swale leading from the disposal area.

Construction details are summarized in Table 2 and illustrated in Figure 10. Lithologic logs for these wells are included in Appendix D. The wells designated with "PZ" have essentially the same construction as those designated with "W" except that the holes for the PZ wells were wash-bored to bedrock, whereas those for the W wells were augered and the drilling equipment was cleaned before drilling each W well. The bedrock was cored using an NQ core barrel, which has a nominal outside diameter (O.D.) of three inches. The screen was set in the 3-in hole and a filter pack was added around the screen. A bentonite seal was placed above the filter pack and the remainder of the annulus was filled with cement grout. A 1.7-in O.D. Brainard-Kilman hand pump was used to develop the wells.

The wells are relatively shallow and most are screened over an interval which spans the unconsolidated zone/bedrock

On-Site Monitor Well Installation and Sampling

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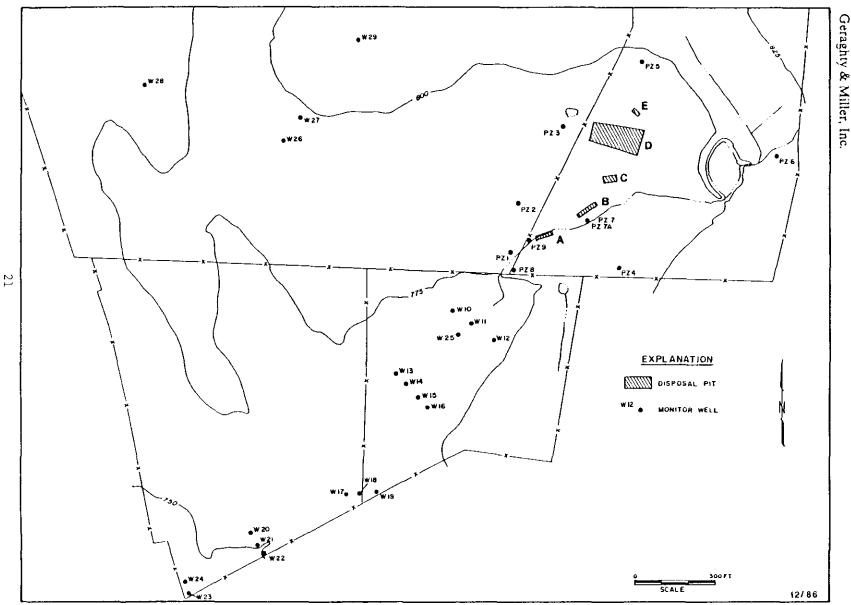


FIGURE 9. MONITOR WELLS AND DISPOSAL PITS

GERAGHTY 6	رج	MILL	ÆR,	INC.
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TABLE 2

8	WASH BIT REFUSAL (Depth, ft)	9.6	5.4	5.7	5.7	5.0	9.3	6.2	6.3	6.6	7.4	9.7	4.9	7.2	4.6	۵. د ک	. 5 . 5	1.2	5.3	7.0	8.8 5.8	4.4	8.5	5.4	11.2	11.3	6.9	10.9	7.0	82 ·	8°3
	GROOT BACKTLL INTERNAL (Depth, ft)	9.6 - 0	0 ~ 4.5	0 - 5.0	0 - 5.0	0 - 4.0	0 ~ 8.5	0 - 3.5	0 - 6.0	0 - 6.0	0 - 5.5	0 - 1.75		0 - 1.0				0 - 2.6		0 - 1.2	0 - 2.6		0 - 3.2		0 - 2.5	0 - 4.5		0 - 3.0			0 - 8.2
	BENTONITE SEAL INTERVAL (Depth, ft)	9.6 - 12.0	4.5 - 6.0	5.0 - 6.5	5.0 - 7.0	4.0 - 6.0	8.5 - 10.5	3.5 - 5.0	6.0 - 7.5	-		1.7 - 3.7			0 - 1.3						2.6 - 4.6			0 - 2.0		4.5 - 7.0		3.0 - 6.5			8.2 - 10.2
CONSTRUCTION DETAILS OF ON-SITE MONITOR WELLS	FILTER PACK INTERVAL (Depth, ft)	12.0 - 31.3	6.0 - 30.7	6.5 - 30.7	7.0 - 31.2	6.0 - 32.0	10.5 - 28.5	5.0 - 8.3	7.5 - 21.4	8.0 - 11.0	7.0 - 10.4	3.7 - 13.2	1.8 - 7.2	3.1 - 9.5	1.3 - 7.0	2.6 - 5.5	2.6 - 6.5	5.1 - 11.5	2.1 - 9.0	3.4 - 9.2	4.6 - 11.0	2.7 - 6.5	5.2 - 11.5	2.0 - 7.8	4.5 - 14.5	7.0 - 13.8	3.0 - 6.9	6.5 - 21.2	1.6 - 11.6	2.5 - 11.0	10.2 - 44.5
ON DETAILS OF CIV-	SCREENED INTERVAL (Depth, ft)	20.55 - 30.55	20.7 - 30.7	ŀ	1	,	18.5 - 28.5	1	11.4 - 21.4	8.0 - 11.1	7.5 - 10.4	5.4 - 13.2	1.8 - 7.2	4.1 - 9.5	1.4 - 7.0	ı	•	١	1	1	ı	١	1	2.2 - 7.8	١	١	1	8.0 - 21.2	1	3.0 - 11.6	16.7 - 44.5
CONSTRUCTIO	MEAS. PT. EIEV. (ft ms1)	780.30	781.20	790.00	793.60	800.60	810.50	782.00	781.50	780.70	779.40	772.10	771.20	773.50	776.50	769.70	767.60	769.90	760.60	761.40	761.30	753.60	752.70	752.40	747.00	748.00	767.50	794.50	797.30	767.40	824.40
	SURFACE ELEV. (ft msl)	1,777	778,08	787.25	790.40	07.767	608.47	80.677	77.877	777.60	0.777	769.8	768.83	171.19	764.07	767.29	765.16	767.5	758.3	759.0	759.9	751.2	750.31	750.0	744.63	745.0	765.10	792.10	794.79	764.99	822.0
	INSTALLATION DATE	1/15/86	1/15/86	1/17/86	1/11/86	1/20/86	1/21/86	1/23/86	1/24/86	1/27/86	1/28/86	3/04/86	3/04/86	3/04/86	3/04/86	3/04/86	3/14/86	3/04/86	3/14/36	3/14/86	3/14/86	3/14/86	2/28/86	2/28/86	2/28/86	3/03/86	3/14/86	3/03/86	3/03/86	3/03/86	3/04/86
	WELL NO.	PZ-1	P2-2	P2-3	P2-4	5-24	9-2d	L-24	P2-7A	P2-8	6-2d	1+10	¥-11	₩-12	¥-13		5: F15		下.	¥-18	¥-19	¥-20	14-21	₩-22	₩-23	14-24	W-25	₩-26	¥-27	₩-28	₩-29

All casiny is 2-inch-diameter PVC, flush threaded.
All screen is 2-inch-diameter PVC, slotted (0.01 in slot).
Wells P2-1 through P2-9 wash-bored to bearook (6-inch-diameter borehole).
Hells W-10 through W-29 augered to bearook (6-inch-diameter borehole).
All wells except W-25 cored from top of bedrock to total depth (3-inch-diameter corehole).

NOTES

I. All wells installed by GA.

2. Elevations determined by GA.

3. Masuring points are top of PVC casing.

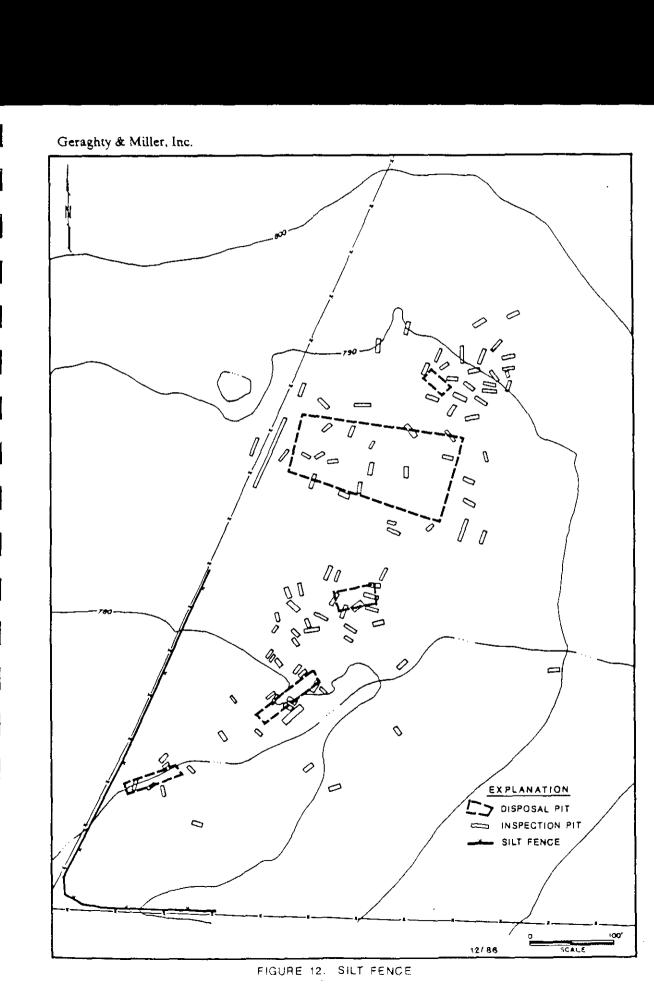
4. Total depth of each well is the bottom of the filter pack.

water flow system, to determine directions and rates of ground-water flow, and to determine ground-water discharge points. The USGS plans to install monitor well clusters on the Kennon property and in the surrounding area. Each cluster will consist of a shallow well open to the Bigby Cannon or Upper Hermitage Formations and a deep well open to the Carters and Lower Hermitage Formations.

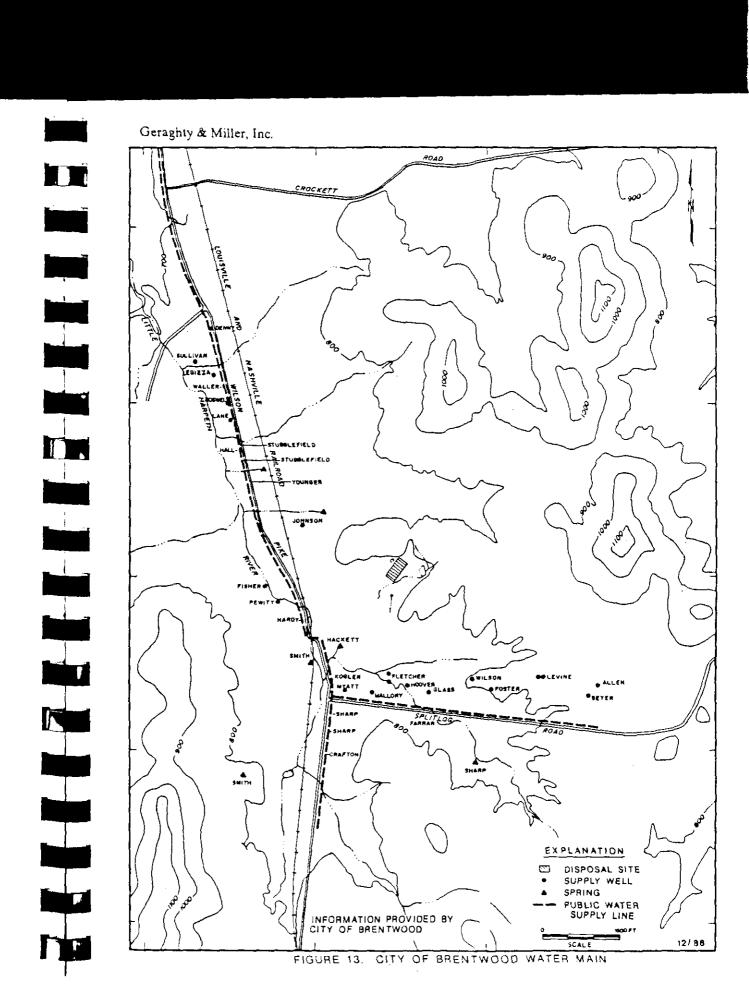
Remedial Actions

Measures have been taken to minimize potential threats to human health and the environment. A continuous silt screen was constructed during January 1986 along the fence directly down slope from the source area (Figure 12). This is designed to prevent the transport of contaminated sediment off-site onto adjoining property and eventually into the Little Harpeth River. Samples of surface runoff from the Kennon site and from the Little Harpeth River collected by TDHE show none of the contaminants detected in the source area.

When it was learned that water for residences around the site was supplied by individual wells, Genesco began providing bottled water to the residents in the area. In addition, carbon adsorption filtration units were installed in the water supply systems of the Hackett and Legieza households to remove organics that might be present in the water.



Genesco and the City of Brentwood are cooperating to extend a water main along Wilson Pike and Split Log Road in order to supply Brentwood City water to 28 residences and three unoccupied properties in the area (Figure 13). This project is expected to be completed in the fall of 1986.



drains similar terrain near Franklin, may be applicable to the Little Harpeth River Basin as well. Ground-water discharge provides the base flow of streams, and the USGS study of the Franklin area (Zurawski and Burchett, 1980) indicates an average base flow of 8 inches or 18 percent of the year's rainfall. The actual proportion of annual rainfall that recharges the ground-water system in the study area may vary somewhat from this.

Geology

The Kennon property is underlain by a sequence of relatively flat-lying rocks, principally limestones with interbedded layers of shale and shaley or sandy limestone that is phosphatic in places (Figure 14). A generalized stratigraphic column is presented in Figure 15.

The site lies on the Nashville Dome, along the axis of the Cincinnati Arch, a broad northeast-trending structural high, where erosion along the breached crest has exposed older, underlying rock in an extensive lowland called the Central Basin. The Central Basin is bounded on all sides by escarpments of the younger overlying rocks. The rolling topography within the Central Basin results from weathering of the limestones and erosion of the residual clay and sand into valleys and hills or knobs.

FIGURE 14. GEOLOGIC SECTION THROUGH THE KENNON SITE

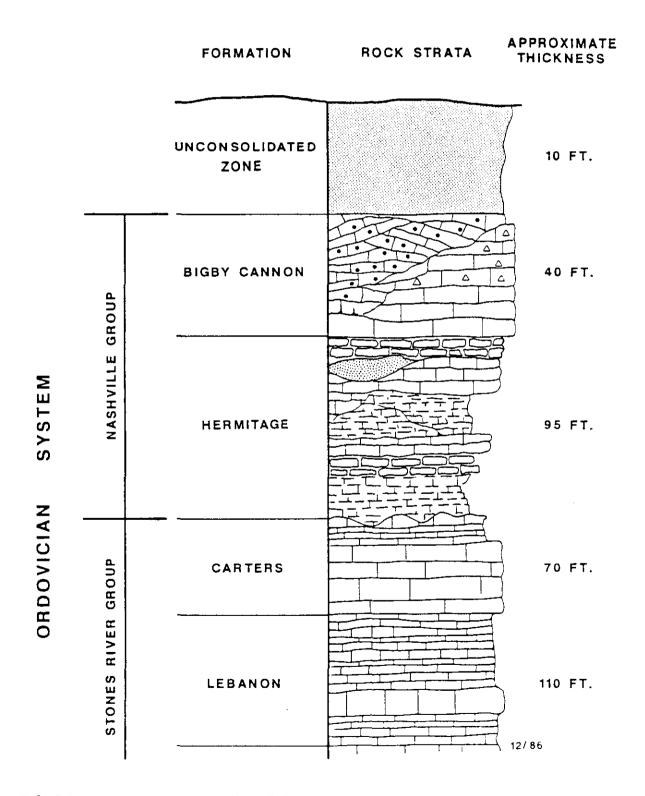


FIGURE 15. GENERALIZED STRATIGRAPHIC COLUMN AT THE KENNON SITE

Surficial Material

Unconsolidated weathering residuum overlying bedrock averages 7-ft thick at the site, and ranges from 3 to 12 ft in the 30 monitor wells drilled by GA. Moderately deep sandy, silty, clayey residuum, which is fairly permeable, typically overlies the Hermitage formation, usually in the lower elevations and along Little Harpeth River. In the upland areas, more commonly underlain by Bigby-Cannon limestones, a relatively thin, clayey residuum develops. Permeability is diminished by the clay content and proportionately less water is able to infiltrate the clayey soils. Steeper slopes, common to areas of clayey soils, are naturally more conducive to surface runoff than infiltration.

Bigby-Cannon Formation

Cores recovered from test drilling of the monitor wells into the Bigby-Cannon Formation show a relatively thin-bedded calcarenite, composed of sand-size grains of carbonate rock cemented to form a consolidated limestone. Cross-bedding of the particles is evident, and color varies from light to dark gray through a vertical distance of a few inches or less, due principally to varying content of clay. This appears to be the basal member of the Bigby limestone. Thickness of this unit ranges from 1.9 to 13.5 ft and averages 8 ft in the 7 test holes that penetrated to the Hermitage Formation.

The texture of the rock is relatively open, suggesting

moderate primary permeability. Solution features are common throughout the core samples, particularly in the lighter-colored, less clayey sections and along bedding planes. Secondary permeability through these solution conduits would appear to be very good, particularly horizontal permeability. Cross beds are not extensive, so vertical permeability may be greater than suggested by observation of any one core. Vertical fractures, not seen in the cores, may be present and would also increase the vertical permeability.

Hermitage Formation

The Hermitage Formation underlies the Bigby limestone beneath much of the site, particularly the uplands. In the southern edge of the Kennon property, and along the bed and floodplain of Little Harpeth River, the Bigby has been eroded away and the Hermitage is the uppermost rock unit. The Hermitage, in this area, may be as much as 50 ft thick. upper Hermitage is a coquina facies, a poorly consolidated deposit of shells that is quite permeable. This facies apparently does not occur at the Kennon site because the ten test holes that penetrated the Hermitage Formation revealed alternate shale and limestone typical of the middle Hermitage "laminated argillaceous limestone facies". This facies, which is reportedly 40 to 75 ft thick is described as silty to sandy limestone with thin shale partings. Core recovered at the site show the Hermitage to be about 50 percent shale, with some shale beds exceeding 1 ft in thickness. This

accords with drillers' descriptions of the Hermitage as a confining formation. The basal 5 ft of the Hermitage, the Curdsville limestone member, is a thin-bedded limestone with thin shale partings.

The top of the Hermitage Formation may be an important control of ground-water flow because of the low permeability of the Hermitage shales. Additional data collected during the proposed drilling program will be sufficient to delineate this surface. Although the Hermitage is tentatively considered a confining unit that may well limit the contaminants to the uppermost aquifer, it will be necessary to verify that this is indeed the case.

Carters Limestone

The upper 5 to 10 ft of Carters is thin-bedded, fine-grained to cryptocrystalline limestone with thin shale partings. Immediately below is a dense sticky bentonite clay, the T-3 bed, which is 6 to 12 inches thick. Beneath the T-3 bed, the lower member of the Carters is a very fine-grained to cryptocrystalline thick-bedded limestone with minor mottlings of dolomite and thin bands and lenses of chert locally. Thickness of the lower unit is about 70 ft. The lower unit includes two additional bentonite layers, the T-1 and T-2 beds, that are apparently less distinct than T-3.

The Carters limestone was exposed to erosion prior to deposition of the Hermitage formation and is reported to be

riddled with solution features that provide conduits for ground-water flow. The Carters has yielded 400 gallons per minute (gpm) to wells near Franklin, apparently from solution conduits in the lower unit. (Zurawski and Burchett, 1980). The Carters crops out about 2 miles south of the site in the valley of Mayes Creek and is extensively exposed from there southward.

Lebanon Limestone

The Lebanon limestone is a cryptocrystalline to, occasionally, coarse grained, thin bedded limestone with thin shale partings. The Lebanon is reported to be about 100 ft thick in the study area. The shale beds apparently comprise a confining layer and the Lebanon is considered here to be the base of local ground-water flow.

Structure

Although the rock units in the area are generally flatlying, local flexures are not uncommon. The valley of the Little Harpeth may be simply erosional; it may have developed along a downward flexure in the underlying rocks; or it may have developed in an area of subsidence or collapse into solution features in the underlying limestone. Examples of all three cases exist within the area.

If the valley is simply erosional, shallow ground water is, most likely, discharging to the banks and bottom of Little Harpeth River from either side. This would be even

more likely if a structural downwarp had initiated erosion of the valley.

Subsidence of the Hermitage into solution cavities in the underlying Carters limestone would likely have resulted in breaching of the confining shale layers and development of vertical flow paths through the Hermitage Formation. Topography of the Little Harpeth Valley suggests that this was probably not the case. There are no closed depressions or steep scarps indicative of collapse.

Joints

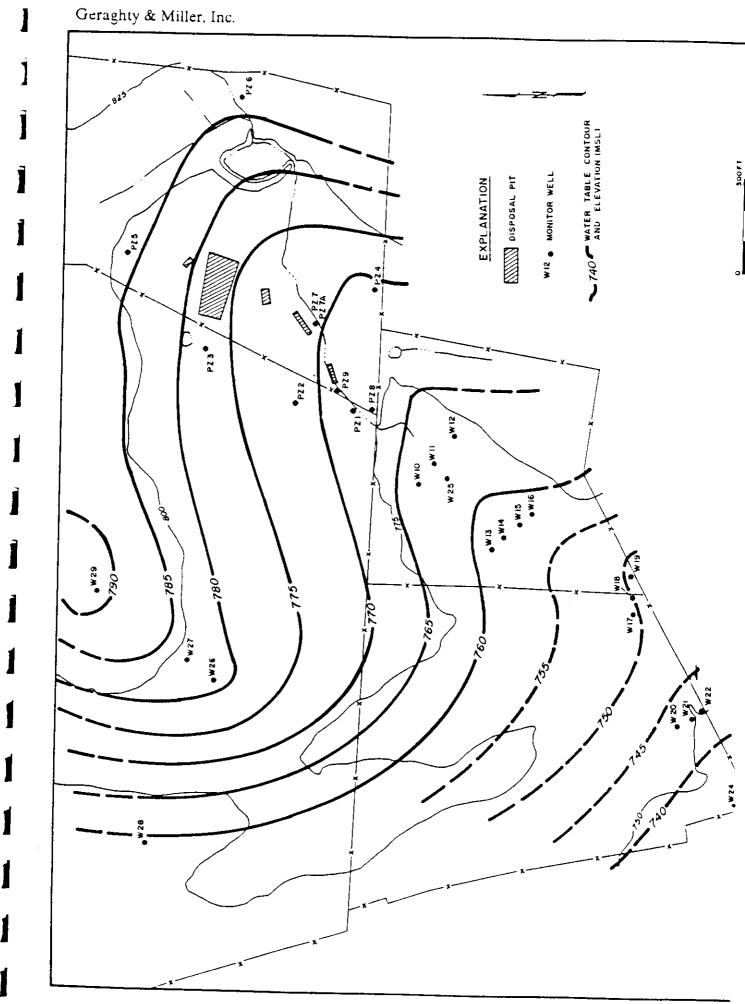
Joints are vertical or near-vertical fractures that, in limestone, are commonly enlarged by dissolution of the carbonate rock by downward-percolating water. The enlarged joints become increasingly active conduits for horizontal ground-water flow as well as vertical flow between aquifers. Regional studies in the Nashville area have demonstrated a prominent joint set oriented northwest and another set oriented northeast (Barr, 1961).

A study of air photos of the site reveals linear depressions that may be due to solution enlarged joints in the underlying bedrock. One lineation is the axis of the northeast trending swale in which the disposal pits are located. Another trends northwest, approximately in line with monitor wells W-28 and W-19. The relatively high yields of water from wells W-25 and W-19 may be explained by underlying joints at these locations.

Ground-Water Flow

Ground water moving beneath the Kennon site is recharged from precipitation on the site. Contours of the water table (Figure 16) show that ground-water flow in the uppermost aquifer, the surficial material and Bigby-Cannon limestones, generally follows the topography of the land surface and, most likely, discharges to Little Harpeth River and to springs and seeps in topographically low areas.

The Hermitage Formation is assumed to be a confining bed that isolates shallow ground water at the site from the deeper aquifers, although some vertical leakage may take place. Solutionally-enlarged joints in the Hermitage may provide conduits for vertical movement of water between the Bigby limestone and the Carters. Proposed deep wells are designed to verify whether this is the case, as well as to determine the presence of contaminants, if any, and the rate and direction of flow in the deeper aquifers.



KENNON SITE

Site No. TND 981473575

Reference No. 3

The

Condensed Chemical Dictionary

TENTH EDITION (1981)

Revised by

GESSNER G. HAWLEY



vars.
o skin and eyes; causes blisard.

Exists only at low temperaf.p. =114°C; b.p. =20°C; tion at normal pressure to nexachlorobenzene, carbon tetrachloride vapor and 10° mm Hg, on with carbon; forms phosexygen.

ine solid; m.p. 93-95°C.

phenyl)-1.3,5,-triazin-2-NiCl), line solid; m.p. 159~160°C;

vic. See aniline.

rsine. See chlorovinvldi-

odiphenylmethane. See oroaniline).

penzoquinone (DDQ) 'N): C(CN).

-w-orange solid; m.p. 213-

axidizing agent for organic

r. See dichloroethyl ether. See dichloroethyl formal. (mustard gas; dichloroethyl

d; b.p. 228°C; f.p. 14°C; sp. 10°F (104°C).

thylene through sulfur chloiycol and hydrogen chloride. Icontaining excess sulfur as a

Vesicant war gas; causes ndness! Can be decontamior bleaching powder. Vapor and can be absorbed through

st poison gas; medicine.
Rail) Poison gas label. Not
(Air) Not acceptable.
(CICH₂CH₂)₂SO₂.
vstal

§ 179-181°C(14-15

u. .n water.

irritant to eyes and skin.

2.2-dichloro-1.1-difluoroethyl methyl ether (methoxyrlurane) HCCl₂CF₂OCH₃.

Properties: Clear, colorless liquid; fruity odor; b.p. 104.65°C; f.p. -35°C; sp. gr. 1.4223 (25°C); completely stable in the presence of alkali, air, light, or moisture. Slightly soluble in water. Combustible. Grade: N.D.

Use: Anesthetic

 $\begin{array}{ll} \mbox{dichlorodifluoromethane} & \mbox{(difluorodichloromethane; fluorocarbon-12), CCl_2F_2,} \end{array}$

Properties: Colorless, odorless, noncorrosive gas. B.p. -29.8°C; f.p. -158°C; critical pressure 43.2 atm. Insoluble in water; soluble in most organic solvents. Nonflammable.

Derivation: (a) Reaction of carbon tetrachloride and anhydrous hydrogen fluoride, in the presence of an antimony halide catalyst; (b) high temperature chlorination of vinylidene fluoride (vinylidene fluorides made by addition of hydrogen fluoride to acetylene). Grade: 99.9% min. purity.

Containers: Cylinders.

Hazard: Narcotic in high concentrations. Tolerance, 1000 ppm in air.

Uses: Refrigerant and air conditioner; plastics; blowing agent; low-temperature solvent; leak-detecting agent; freezing of foods by direct contact; chilling cocktail glasses.

Shipping regulations: (Rail, Air) Nonflammable Gaslabel.

See also chlorofluorocarbon.

1,3-dichloro-5,5-dimethylhydantoin (DDH) CINCONCIOC(CH₃)₂.

Properties: White powder with mild chlorine odor. M.p. approximately 130°C; sublimes about 100°C without decomposition. Contains approximately 36% active chlorine. Slightly soluble in water with gradual liberation of hypochlorous acid; soluble in benzene, chloroform, ethylene dichloride, alcohol. Combustible, with evolution of chlorine at 210°C. Derivation: Chlorination of dimethylhydantoin. Grades: Technical.

Hazard: Toxic by inhalation. Tolerance, 0.2 mg per cubic meter of air. Skin irritant.

Uses: Household laundry bleach; water treatment; mild chlorinating agent; pharmaceutical intermediate: catalyst.

dichlorodimethylsilane. See dimethyldichlorosilane. dichlorodiphenyldichloroethane. See TDE. dichlorodiphenyldichloroethylene. See DDE. dichlorodiphenyltrichloroethane. See DDT.

1.1-dichloroethane. See ethylidene chloride.

1,2-dichloroethane. See ethylene dichloride.

dichloroether. See dichloroethyl ether.

dichloroethoxymethane. See dichloroethylformal.

1.2-dichloroethyl acetate CH-COOCHCICH-CI.

Properties: Water-white liquid. Sp. gr. 1.296 (20° C); boiling range: 58-65° C (13 mm); f.p. < -32° C; refractive index 1.444 (20° C); b.p., dec. Flash point 307° F (152° C). Combustible. Miscible with alcohol and ethyl ether. Immiscible with water.

Hazard: Toxic by inhalation.

Use: Organic synthesis.

para-di(2-chloroethyl)aminophenylalamine. See melphalan.

dichloroethylarsine. See ethyldichloroarsine.

dichloroethyl carbonate (ClH2CCH2O)2CO.

Properties: Colorless liquid. Slowly hydrolyzed by alkalies. Volatile in steam. Sp. gr. 1.3506 (20°C); b.p. 240°C (partial decomposition). Insoluble in water.

Derivation: By heating ethylene chlorohydrin and trichloromethylchloroformate together (under reflux).

sym-dichloroethylene (1.2-dichloroethylene; acety-Lene dichloride). CIHC: CHCl. Exists as cis and trans isomers.

Properties: Colorless, low-boiling liquid. Pleasant odor. It decomposes slowly on exposure to air, light and moisture. Soluble in most organic solvents; slightly soluble in water. Trans-isomer; sp. gr. 1.257; b.p. 47-49°C. Cis-isomer; sp. gr. 1.282; b.p. 58-60°C. Flash point 39°F (3.9°C); f.p. +80°C.

Derivation: Two stereoisomeric compounds made by the partial chlorination of acetylene.

Grades: Technical; as cis, trans, and mixture of both. Containers: 300-, 550-lb drums.

Hazard: Moderately toxic by ingestion, inhalation and skin contact; irritant and narcotic in high concentrations. Tolerance, 200 ppm in air. Flammable, dangerous fire hazard.

Uses: General solvent for organic materials; dye extraction; perfumes; lacquers; thermoplastics; organic synthesis.

Shipping regulations: (Rail, Air) Flammable Liquid label.

sym-dichloroethyl ether (dichloroether; dichloroethyl oxide; 2,2'-dichlorodiethyl ether, bis(2-chloroethyl) ether) ClCH₂CH₂CH₂CH₂Cl.

Properties: Colorless liquid. Odor like that of ethylene dichloride. B.p. 178.5°C; sp. gr. 1.2220 (20/20°C); wt/gal 10.2 lb (20°C); refractive index 1.457 (20°C); flash point (closed cup) 131°F (55°C); f.p. -51.8°C. Autoignition temp. 696°F (368°C). Miscible with most organic solvents; insoluble in water. Combustible.

Derivation: Chlorination of ethyl ether.

Grades: Technical.

Containers: Glass bottles; iron drums; tank cars.

Hazard: Toxic by inhalation and ingestion; absorbed by skin; strong irritant. Tolerance, 5 ppm in air. Moderate fire hazard.

Uses: General solvent; selective solvent for production of high-grade lubricating oils; textile scouring KENNON SITE

Site No. TND 981473575

Reference No. 4 SAX

KENNON SITE

Site No. TND 981473575

Reference No. 5

Leipers and Catheys Formations

Limestone, argiliaceous, nodular and shaly, medium to brownish-gray, fine-grained, thindark grav to brownish-gray, hne-grained, finitedned tossiliterous, limestone, dark-gray weathers to pale vellowish-brown, fine-grained, thin to medium-bedded, calcarente, medium light-gray to brownish-gray, coarse-grained, medium-bedded, crossbedded, phosphatic, weathers to brown phosphatic residuum; and thin zones of limestone, claves, phatic residuum; and thin zones of limestone, clayer, medium-gray (weathers to light-gray surface), crypto crystalline, medium-bedded, breaks with conchoidal fracture, present only in the north. At base of formation is shally limestone or calcareous shale, olive-gray to yellowish-brown, fine-grained, which typically contains large numbers of bryozoans (Constellaria zone). Thickness 120 to 200 feet.

Obc

Bigby-Cannon Limestone

The Bigby-Cannon Limestone in the Franklin quadrangle consists of three facies—the Cannon limestone, Dove-colored limestone, and Bigby limestone—which replace each other laterally and vertically. The Bigby comprises the upper and lower parts of the formation, whereas the middle part includes all three facies. The formation ranges in thickness from 70 to 130 feet.

Cannon limestone facies is medium dark-gray to brownish-black, microcrystalline to medium-grained, thin-to medium-bedded, evenly bedded. Composite thickness 10 to 40 feet.

Dove-colored limestone facies is medium light-gray to medium-gray (weathers to a characteristic light-gray surface), cryptocrystalline, medium and evenly bedded, brittle, breaks with pronounced concholdal fracture, contains specks and stringers of clear calcite. Composite thickness 5 to 30 feet.

Bigby limestone facies is calcarenite, medium light-gray to brownish-gray, coarse-grained, medium-bedded, crossbedded, contains brown phosphate pellets, weathers to brown phosphatic residuum. Composite thickness 60 to 100 feet.

Οħ

Hermitage Formation

Coquina facies at top is limestone with disseminated silt and shale partings, medium-gray to brownish-gray, medium-bedded, characterized by numerous snells of the brachiopod Resserella fertilis (formerly Dalmanella fertilis). Thickness 10 to 20 feet.

Laminated argillaceous limestone facies is silty to sandy, medium-gray to dark-gray (weathers to pale to dark yellowish-brown), very fine- to medium-grained, laminated to thin-bedded with thin shale partings. Thickness about 40 to 75 feet.

Curdsville Limestone Member at base is medium- to dark-gray, fine- to medium-grained, thin-bedded with thin shale partings, fossiliferous. Thickness 0

Thickness of formation 50 to 100 feet.

Obc)

ers Knob

Oc

Carters Limestone

Upper member is limestone, medium light-gray to brownish-gray and yellowish-brown, very fine-grained to cryptocrystalline, thin-bedded with thin shale partings. Thickness 5 to 10 feet.

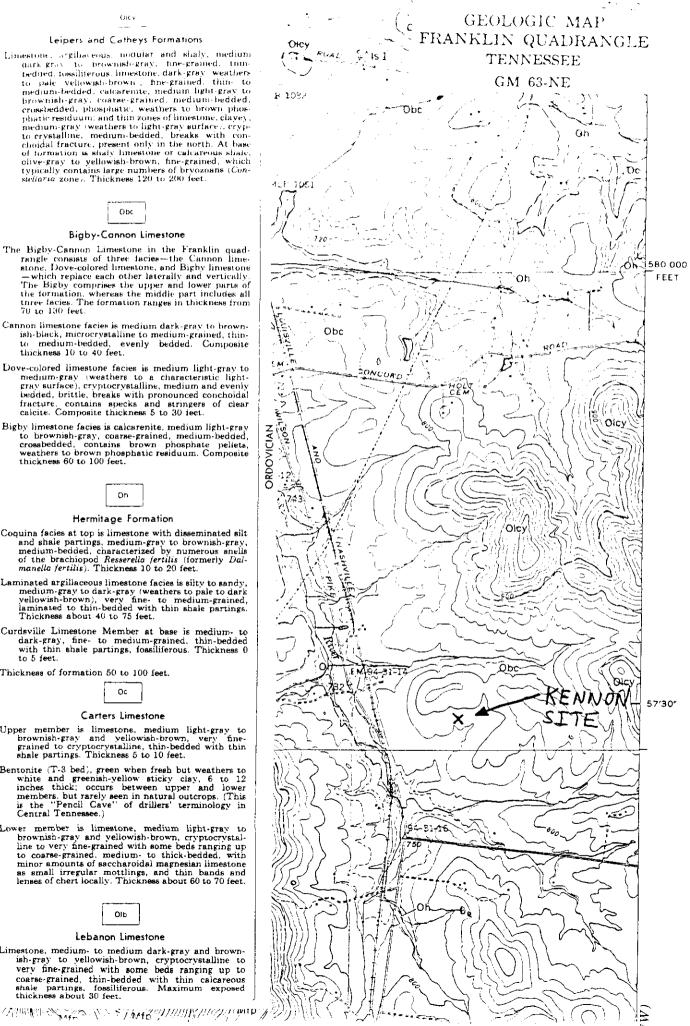
Bentonite (T-3 bed), green when fresh but weathers to white and greenish-yellow sticky clay, 6 to 12 inches thick; occurs between upper and lower members, but rarely seen in natural outcrops. (This is the "Pencil Cave" of drillers' terminology in Central Tennessee.)

Lower member is limestone, medium light-gray to brownish-gray and yellowish-brown, cryptocrystal-line to very fine-grained with some beds ranging up to coarse-grained, medium- to thick-bedded, with minor amounts of saccharoidal magnesian limestone as small irregular mottlings, and thin bands and lenses of chert locally. Thickness about 60 to 70 feet.

Olb

Lebanon Limestone

Limestone, medium to medium dark-gray and brownish-gray to vellowish-brown, cryptocrystalline to very fine-grained with some beds ranging up to coarse-grained, thin-bedded with thin calcareous shale partings, fossiliferous. Maximum exposed thickness about 30 feet.



KENNON SITE

Site No. TND 981473575

Reference No. 6

NASHVILLE AND MIDDLE TENNESSEE AREA

_		,	,				
	SYSTEM	GROUP	FORMATION	ROCK STRATA	AVERAGE THICKNESS ft.	RANGE OF THICKNESS ft.	GENERALIZED DESCRIPTION OF ROCKS OUTCROPPING IN NASHVILLE AND MIDDLE TENNESSEE.
			STE. GENEVIEVE (MONTEAGLE)		250	180-350	STE. GENEVIEVE LIMESTONE: Gray to white itmestone, variable bedding thickness, collin: layers, gray cheri near base. Weathers to present ground water lable, very cavernous, develops karst topography, weathers to reddish brown clay 20-40 feet thick. Outcrops on Northern Highland Rim. ST. LOUIS FORMATION: Brownish gray cherty limestone, thick bedded to massive, numerous gray to black chert beds
	N		ST. LOUIS		180	100-280	and nodules. Weathers deep to present ground water table, develops kerst topography, weathers to reddish brown clay about 20 teet thick. Outcrops on highland Rim. WARSAW LIMESTONE: Gray, cross bedded limestone, massive, line grained, some chert. Weathers deep but sinkhole development not as intense as St. Louis Formation. Sandy and shaley faces near base. Weathers to reddish brown clay about 20 feet deep. Outcrops on Highland Rim. FORT PAYNE FORMATION: Dark gray silistone, shale, and
	MISSISSIPPIAN		WARSAW		100	40-150	cherty limesione. Thin beds of crinoidal limesione, green shale at pase (Maury Shale), contains phosphate nodules. Weathers to residual cherty clay about 15 feet oeep. Outcrops along Highland Rim and higher hills within Central Basin. Excellent road metal. CHATTANOOGA SHALE: Dark grayish black fissle,
	MISS		FT. PAYNE		250	200-400	Carbonaceous shale, thin sandstone at base. Weathers to light butt clay. Outcrops on Highland Rimand on higher hills within Central Basin. Widely used by geologists as a mapping unit, both in surface and subsurface. PEGRAM FORMATION: Light gray timestone, massive, Minor amounts of light gray shale and sandstone in lower portion. Outcrops mainly in the Kingston Springs area. CAMDEN FORMATION: Thin to medium bedded blue gray, shaley limestone containing nodules and bands of chert. Chert beds average 5 to 12 inches thick and are separated by white clay partings. Weathers to thin residual soll less than three feel thick then a thicker weathered layer of angular blocks and sharp tragments of chert rubble. Very difficult to drill or excevate with conventional excavation equipment. Outcrops mainly in Benton, Decatur, and Perry counties. Chert beds are used locally as road metal and ballast. FLAT GAP LIMESTONE: Light gray and pink timestone.
			CHATTANOOGA		20	10-70	occasionally glauconitic in upper part. Outcrops in extreme western counties of Highland Rim. Very good concrete
			PEGRAM		17	0-30	appregate.
	DEVONIAN		CAMDEN		95	0-220	ROSS FORMATION: Alternating facies of thin timestone and thick shales. Shales are blue or greenish gray. Limestones weather to glades and shales generally do not have slope stability on sleep road cuts. SILURIAN SYSTEM: Extramely variable in outcrop and thickness. Major unconformity extends from base of Mississippian System through Devonion and Silurian.
į	5		FLAT GAP		20	0-55	Systems. Silurian is predominantly limestone and shaley limestone. See Tennessee Division Geology Bulletin 56 for
	_						complete description.
			ROSS		45	0-110	SEQUATCHIE FORMATION: Greenish gray, massive
	SILURIAN		DECATUR BROWNSPORT		VARIABLE	0-250	mudistone with some sand, shale, and limestone. Contains Mannie Shale Facies which is a green calcaracous shale that weathers into laminated cobbles of green silt. Outcrops mostly in Lincoln, Franklin, and Martion Counties. Contains Fernivale. Limestone Facies, which is an irregular bedded
	SILL	WAYNE	BRASSFIELD				massive limestone containing enough limonite to be a low grade Iron ore. LEIPERS FORMATION: Dark blue gray, earthy, nodular limestone. Thin beds of limestone separated by shale
		_	SEQUATCHIE		55	0-275	mudistone and siltatione beds from a lew inches to 10 seet thick. Weathers to light brown silty clay soil 3 to 5 seet thick. Weathering along fractures and faults can penetrate 20 feet into rock mass. Outcrops mostly along edge of Central Basin.
		MAYSVILLE	LEIPERS		70	0-160	INMAN FORMATION: Greenish gray calcareous shale interbedded with thin beds of dense limestone. Weathers to thin clay soll. Outcrops in southeastern part of Middle Tennessee is a very restricted outcrop bell.
		EDEN	INMAN		50	0-70	CATHEYS FORMATION: A complex mixture of shaley ilmestone units. Typically it is thin bedded, blue gray nodular immestone interbedded with thin partings of shale and sitistone. Weathers to thin sitty clay soil usually 3 to 4 teet.
	The West Section of the Control of t		CATHEYS		130	10-250	thick. Outcrops extensively in Central Basin. BIGBY CANNON LIMESTONE: Composed of 3 facles; (1) the Bigby facies is blue gray, massive, granular, cross bedded, and phosphalic. (2) Dove facies is a light gray (Dove colored) dense fine grained imestone. (3) Cannon facies is blue gray imestone, massive but non-phosphatic. All facies weather to reddish-brown clay usually less than 10 feet thick. Some sinkhole development and considerable deep weathering along vertical fractures. Dutcrops in Central
2°7	Z Z	NASHVILLE	BIGBY CANNON		80	50-100	Basin. Mined for phosphate in several counties of Central Basin. HERMITAGE FORMATION: Variable rock units consisting of thin-bedded, dark blue-gray shaley limestone and sandy limestone in northwest part of Central Basin. Persistent layer of shale and phosphatic shale in central part of Central Basin.
	ORDOVICIAN		HERMITAGE		120	70-180	Sity shale and nodular immestone in south part of Central Basin. Weathers to a sity and sandy clay up to 20 feet thick. Outcrops extensively in Central Basin. CARTERS LIMESTONE: Contains upper and Lower member separated by T ² bentonite clay. Upper member is thin bedded, light gray shaley limestone about 10 feet thick. Lower member is massive, light gray, fine grained limestone about 50 feet thick and contains T ² and T ² bentonlite clays. Weathers to brown plastic clay about 4 feet thick with some
			CARTERS		60	37-93	sink holes. Outcrops extensively in Central Basin. LEBANON LIMESTONE: Blue-gray, dense, fine-grained, thin-bedded limestone. Bedding planes contain thin shale layers, weathers to toose slabs of limestone with very little residual soil. Forms cedar glades and has worm-eaten
Ī	!	Ļ				ļ	residual soil. Forms cedar glades and has worm-ea

KENNON SITE

Site No. TND 981473575

Reference No. 7

į.



United States Department of the Interior

File 504-42

DHS Si

GEOLOGICAL SURVEY
Water Resources Division
Tennessee District

A-413 Federal Bldg. U.S. Courthouse Nashville, TN 37203 February 19, 1987

Mr. Todd Hughes
Tennessee Department of Health
and Environment
Custome House - 4th Floor
701 Broadway
Nashville, TN 37219-5403

94-508 (1)

Dear Todd:

We have completed observation well installations and logging for the Genesco Hazardous Waste Site Investigation. Enclosed please find tables of data on the new wells and a sample resistivity log. We are completing a first draft of a basic data report on the site study, but we thought that both you and Geraghty and Miller would like to have preliminary copies of this data. If you approve, let me know and I'll route copies to Don Brice of Geraghty and Miller.

Sincerely yours,

FOR THE DISTRICT CHAPEF

Roger W. Lee

Enclosure

LOCAL WELL NUMBER	DEPTH OF WELL (FEET)	BOTTOM OF CASING (FEET)	WATER- LEVEL DATE	WATER LEVEL (FEET)	WM:N-030
WM: N-020 WM: N-022 WM: N-023 WM: N-024 WM: N-033	350 158 1050 240 150	21.0 20.0 20.0 21.0	 	 	040 are domestic vells.
WM: N-038 WM: N-039 WM: N-040 WM: N-041 WM: N-041A	175 220 350 45.0 225	20.0 10.0 62.0	02-05-87 02-05-87	 10.05 39.13	No W/C Dala obtained
WM: N-042 WM: N-042A WM: N-043 'M: N-043A .1: N-044	35.0 193 28.0 102 34.1	10.7 34.0 5.00 15.0 5.00	02-05-87 02-05-87 02-05-87 02-05-87 02-05-87	16.06 15.76 25.53 9.27 10.06	WIL referenced to depth below Land surface.
WM:N-044A	102	20.0	02-05-87	9.57	surface.
WM:N-045	49.0		02-05-87	30.94	
WM:N-045A	167	59.0	02-05-87	71.46	
WM:N-046	30.0	4.50	02-05-87	4.98	
WM:N-046A	135	15.0	02-05-87	29.57	
WM:N-047	20.0	3.10	02-05-87	5.92	
WM:N-047A	162	17.0	02-05-87	35.83	
WM:N-048	45.0	6.00			
WM:N-048A	152	41.0	02-05-87	71.81	
WM:N-050	45.0	10.0	02-05-87	11.70	
WM:N-050A	162	55.0	02-05-87	80.82	
WM:N-051	25.0	8.70	02-05-87	11.63	
WM:N-051A	137	34.0	02-05-87	36.46	
WM:N-052	35.0	19.5	02-05-87	19.50	
WM:N-052A	132	33.0	02-05-87	57.94	
WM:N-053	55.0	10.0	02-05-87	35.09	Wn: N-057 15 a Flowing well of head 710° about
M:N-053A	203	41.0	02-05-87	63.79	
1:N-054	30.0	4.50	02-05-87	2.69	
WM:N-054A	139	32.0	02-05-87	17.85	
WM:N-055	30.0	5.80	02-05-87	14.32	
WM:N-055A WM:N-056 WM:N-056A WM:N-057 WM:N-057A	177 775 775 795 795	26.0 20.0 67.0 9.0 57.0	02-05-87 02-05-87 02-05-87 02-05-87 02-05-87	18.03 22.54 113.29 50.74	(md surface.
WM:N-058	760	12.5	02-05-87	16.51	
WM:N-058A	760	35.0	02-05-87	16.97	

TABLE 1 CONSTRUCTION & STATUS OF DOMESTIC WELLS

				CHISTIC				i .
WEIL CAJER	DATE CHELETO	CASING DIAM. (III)	CASING (FT)	TOTAL DEPTH (FT)	AWENT HERO	HISTORY WITH BURNES WELLE HISTORY	STAILE	DRILLER PO
Allen Beyer Boswell Genury Fischer Fletcher (1)	04/05/69 08/14/85 10/18/84 06/27/84	7 6.25 6.25 6.25	20 20 21 21	68-80 200 1050 350 240 200 198	B,H,C H,,L,R,P,M,K H,C,L H,C,L H,C,L H,C,L	195 1020 277 70,110 115-117 23, 115-116	Residential Residential Residential Residential Residential Residential Residential Residential	Henry Drilling Co. Henry Drilling Co. Henry Drilling Co. Henry Drilling Co. Henry Drilling Co. Henry Drilling Co. Henry Drilling Co. Henry Drilling Co.
Fletcher (2) Foster (1) Foster (2) Gore Holt	08/08/85 05/22/84 06/04/70	6.25 6.25 6 6	20 21 20 25	260 450 75 36	И,С,L И,С,L.R И В	146 230 65 36 80	Residential Residential Residential Residential	Henry Drilling Co.
Hall Howe Johnson I Levine (1) Levine (2)	03/03/86 12/30/72 08/17/74	6.25 6 6	24 20 22	400 220 198 1235 2200	H,C,L H,C,L H,C H,C,L,R,P,M,K H,C,L,R,P,M,K	130 184 1170	Residential Residential Residential Residential	
Myatt Ingieza Mullory Powitt Sullivan Wilson	09/16/81 02/28/84	6.25 6.25	21 21	73 350 105 260	н п,с,г, r п,с в,н,с	28 112 105 28 160	Residential Non-Potable Pesidential Residential Desidential	Herman Clark Water Wells

B = Bighy-Cannon Formation

R = Ridley Formation

H = Hermitage Formation C = Carters Formation

p = Pierce Formation M = Murfreesboro Formation

K = Krox Group L - Lebamon Formation

Information Provided by TDTE, Division of Ground Water Protection.

KENNON SITE

Site No. TND 981473575

Reference No. 8

Engineering, Desp. it & Commences choung Line.



EDG(

March 19, 1986

Mr. Ronnie Bowers Environmental Specialist/Chemist Tennessee Division of Superfund Customs House, Fourth Floor 701 Broadway Nashville, TN 37219-5403

Re: Kennon Property
Analytical Results
Revised Well Sampling Plan

Dear Mr. Bowers:

Pursuant to our telephone conversation of March 18, 1986, I have enclosed a copy of our revised (3/14/86) Well Sampling Plan.

I have also enclosed copies of the analytical results obtained from the samples collected on February 21, 1986. To aid in identification of the samples, a copy of the obverse of the custody tag is attached to the respective analytical report.

As we discussed, the samples from wells 4, 5 and 6 had acetone present at low concentrations with no detectable concentrations of any of the other suspected solvents. These three wells are upgradient of the disposal site. The test pit data showed the presence of acetone in the disposal site but acetone was not the dominant solvent. Thus, the presence of acetone in wells 4, 5 and 6 is currently an unresolved issue but our investigation is continuing. I am convinced that acetone is not selectively migrating upgradient from the site to wells 4, 5 and 6. These comments are offered to reinforce my verbal comments and to caution against undue concern.

During our telephone conversation you requested additional information/data which will be provided in the very near future. Also, I would appreciate your sending to me all analytical data the

Mr. Ronnie Bowers March 19, 1986 Page 2

State has obtained in its sampling efforts. Such data could be of great value in our assessment activities.

Your continued cooperation in this very complex issue is greatly appreciated.

Very truly yours,

ENGINEERING, DESIGN & GEOSCIENCES GROUP, INC.

V. Wayne McCoy

VWM/11s

Enclosures: 2

cc: Ralph Mosely (with enclosures)

FIGURE 9. MONITOR WELLS AND DISPOSAL PITS

Engineering Despired Geosciences broughten

WELL SAMPLING PLAN Kennon Property, Williamson County



- Starting with the upgradient wells, the wells should all be purged as follows:
 - Determine water elevation and record time and date of elevation determination.
 - Determine volume of water in well and purge by pump or bailer three volumes if possible. Record the date of purging and the starting and ending time of purging. Also, measure and record the total volume of water purged.
- Starting with the upgradient wells, the wells should be sampled by the following guidelines:
 - Attempt to sample within 24 hours of purging.
 - Sample, starting with upgradient wells, the deep wells before sampling any of the shallow wells.
 - Record water elevation prior to sampling.
 - A teflon bailer should be used to collect samples.

 Before each well sampling the bailer should be equipped with a clean, unused rope.
 - Initially and before each well sampling, the bailer should be cleaned as follows:
 - Scrub using detergent.
 - Thoroughly rinse with deionized or distilled water until all soap and other residue is removed.
 - Rinse with reagent grade isopropyl alcohol, taking care to avoid allowing isopropyl alcohol to contact the bailer rope.
 - Following the isopropyl alcohol rinse, triple rinse the bailer with deionized or distilled water to remove the isopropyl alcohol.
- Sampling personnel use new disposable gloves prior to each well sampling.
- " Since contaminants of concern may be heavier than water and are only slightly soluble in water, lower teflon bailer to bottom of well to collect sample.
- Collect and discard two (2) bailers of well water; the third bailer of well water should be used for the actual sample.
- Transfer sample from bailer to volatile organics vial with minimum of agitation and such that there are no entrained air bubbles.
- Collect duplicate samples from one well of each ten (10) wells sampled.
- Complete chain of custody card and attach to sample container, also label sample container.
- Keep samples chilled until delivery to laboratory.

Revised 3/14/86 VWM/lls

2346594

Standard Reproduction of the same state No.

1	Source of Sample and COMPLETE Sample Identification (FLNC) 2 History # Powel
2. 3	County Williamson Nearest Town or City BRENTWOOD Type of Sample WATER
Δ	Date Collected 2/1//86 Time Collected 10/00/14/27
5	Name of Sampler (Please Print) MARIK HOBBS Names of Others Present at Time Sample Collected
6.	Names of Others Present at Time Sample Collected
7.	Field No. # .3 Approximate Vol. of Sample 40 m/
8.	Describe field collection procedure and special handling or preservation of this sample WATER - AS PER PROJECT PROTOCOL
9.	Describe how sample conveyed or transported to the laboratory PERSONA TRUCK
10.	Requested Analyses

Committee of the Commit 0296594

296594

REFERRING CLIENT

DATE COLLECTED

TIME COLLECTED

REFERENCE LIMITS

10:00

RECEIVED

02/21/86

CLIENT LAB NO.

02/21/86 REPORTED

GENESCO, INC., EMP. & ENV. SAFET

00000

03/04/85

TEST

RESULT

UNITS

VOLATILE ORGANICS ACROLEIN

1,2-DICHLORDETHANE

1, 1-DI-CL-ETHYLENE

1,2-DICHLOROPROPANE

1,2-DI-CL-PROPYLENE

ETHYLBENZENE METHYL BROMIDE

TOLUENE

2-BUTANONE

ETHYL ACETATE

HEXANE

ACETONE

METHYL CHLORIDE

METHYLENE CHLORIDE

1, 1, 2, 2 TET CL ETHAN

1, 2-DICHLOROETHYLENE

1, 1, 2-TRI-CL-ETHANE : TRICHLOROETHYLENE

1, 1, 1-TRI-CL-ETHANE

TRI-CL-F-METHANE

VINYL CHLORIDE

TETRACHLORDETHYLENE

110110000111	
ACRYLONITRILE	<0.10
BENZENE	<0.010
BIS(CHLOROMETHYL)ETH	<0.010
BROMOFORM	<0.010
CARBON TETRACHLORIDE	<0.010
CHLOROBENZENE	<0.010
CHLORODIBRMETHANE	<0.010
CHLOROETHANE	CO. 010
2-CLETHYVINYL ETHER	<0.010
CHLOROFORM	CO. 010
DI-CL-BR-METHANE	<0.010
DI-CL-DI-F-METHANE	<0.010
1-1-DICHLOROETHANE	<0.010 ···

<0.010 ~~ <0.010 <0.010 CO. 010

<0.10

CO. 010 <0.010 CO. 010 CO. 010 1 CO. 010 <0.010 CO. 010... CO. 010 CO, 010 CO. 010

CO. 010 CO. 010 <0.010 <0.10 CO. 10

<0.010

<0.10 < 0.10 PPM PPM

PPM PPM PPM PPM PPM PPM MAG PPM PPM PPM PPM PPM PPM PPM

PPM PPM PPM PPM PPM PPM MAG PPM PPM PPM PPM PPM PPM PPM PPM PPM PPM PPM

PPM

GENESCO, INC., EMP. & ENV. SAFET RALPH E. MOSELY, DIRECTOR 430 GENESCO PARK

NASHVILLE

ИT

37202



(Lab No

County Williamson	Nearest Town or City BRENTWOOD
Type of Sample WATER Date Collected DA/36	Time Collected 9:58
Names of Others Present at Time Sam	ple Collected
Describe field collection procedure an	d special handling or preservation of this sample
Describe how sample conveyed or train	nsported to the laboratory PERSONAN TRUCK

Control of the following sector data and 0296599

296599

DATE COLLECTED

TIME COLLECTED

09:58

RECEIVED

REFERRING CLIENT 02/21/86

CLIENT LAB NO.

02/21/86 REPORTED

GENESCO, INC., EMP. & ENV. SAFET:

1.00 (1.00 (1.00))

00000

03/04/86

TEST	RESULT	REFERENCE LIMITS	UNITS
VOLATILE ORGANICS			
ACROLEIN	<0.100		PPM
ACRYLONITRILE	<0.100		PPM
BENZENE	<0.050		PPM
BIS(CHLOROMETHYL)ETH	<0.050		PPM
BROMOFORM	<0.050		PPM
CARBON TETRACHLORIDE	<0.050		PPM
CHLOROBENZENE	<0.050		PPM
CHLORODIBRMETHANE	<0.050		PPM
CHLOROETHANE	<0.050		PPM
2-CLETHYVINYL ETHER	<0.050		PPM
CHLOROFORM	<0.050		PPM
DI-CL-BR-METHANE	<0.050		PPM
DI-CL-DI-F-METHANE	<0.050		PPM
1-1-DICHLOROETHANE	<0.050		PPM
1,2-DICHLOROETHANE	<0.050		PPM
1, 1-DI-CL-ETHYLENE	<0.050		PPM
1,2-DICHLOROPROPANE	CO. 050		PPM
1,2-DI-CL-PROPYLENE	<0.050		PPM
ETHYLBENZENE	<0.050		PPM
METHYL BROMIDE	<0.050		PPM
METHYL CHLORIDE	<0.050		PPN
METHYLENE CHLORIDE	<0.050		PPM
1,1,2,2 TET CL ETHAN	<0.050		PPM
TETRACHLORDETHYLENE	<0.050		PPM
TOLUENE	<0.050		PPM
1,2-DICHLOROETHYLENE	<0.050		PPM
1,1,1-TRI-CL-ETHANE	<0.050		PPM
1, 1, 2-TRI-CL-ETHANE	<0.050		PPM
TRICHLOROETHYLENE	<0.050		PPM
TRI-CL-F-METHANE	<0.050		PPM
VINYL CHLORIDE	<0.050		PPM
2-BUTANONE	<0.10		PPM
HEXANE	<0.10		PPM
ACETONE	<0.10		PPM
ETHYL ACETATE	<0.10		PPM

GENESCO, INC., EMP. & ENV. SAFET RALPH E. MOSELY, DIRECTOR 430 GENESCO PARK

NASHVILLE

TN 37202



4.01 HILLSBORO POALS SUITE 133 - NASHVILLE, TENNESSEE 37215

(Lab No

98598

SAMPLE IDENTIFICATION AND CUSTODY TAG

County Williamson	Nearest Town or City BRENTWOOD			
Type of Sample LVATER Date Collected 2/2//36	Time Collected 10:46			
Name of Sampler (Please Print) IVIARIX 17060) Names of Others Present at Time Sample Collected IV III Coy, State Revision to the Sample Collected IV III Coy,				
Field No. # 6 Approximate Vol. of Sample 200 m/				
Describe field collection procedure and	special handling or preservation of this sample			
Describe how sample conveyed or trans	sported to the laboratory PERSONAL TRUCK			
Requested Analyses				

and the description of the Company o

CONTRACTOR CONTRACTOR OF STATE

DITCH-HACKETT PROPERTY FIELDS

0296598

296598

REFERRING CLIENT

RESULT

DATE COLLECTED

TIME COLLECTED

10:46

RECEIVED 02/21/86

02/21/86

CLIENT LAB NO.

REPORTED

GENESCO, INC., EMP. & ENV. SAFET

TEST

00000

03/04/86

REFERENCE LIMITS UNITS

VOLATILE DRGANICS		
ACROLEIN	<o. 100<="" td=""><td>PPM</td></o.>	PPM
ACRYLONITRILE	<0, 100	PPM
BENZENE	<0.050	PPM
BIS(CHLOROMETHYL)ETH	<0.050	PPM
BROMOFORM	<0.050	PPM
CARBON TETRACHLORIDE	<0.050	PPM
CHLOROBENZENE	<0.050	PPM
CHLORODIBRMETHANE	<0.050	PPM
CHLORDETHANE	<0.050	PPM
2-CLETHYVINYL ETHER	CO. 050	PPM
CHLOROFORM	<0.050	PPM
DI-CL-BR-METHANE	<0.050	PPM
DI-CL-DI-F-METHANE	<0.050	PPM
1-1-DICHLOROETHANE	<0.050	PPM
1,2-DICHLORGETHANE	<0.050	PPM
1,1-DI-CL-ETHYLENE	<0.050	PPM
1,2-DICHLOROPROPANE	<0.050	PPM
1,2-DI-CL-PROPYLENE	<0.050	PPM
ETHYLBENZENE	<0.050	PPM
METHYL BROMIDE	<0.050	PPM
METHYL CHLORIDE	<0.050	MPP
METHYLENE CHLORIDE	<0.050	PPM
1,1,2,2 TET CL ETHAN	CD. 050	PPM
TETRACHLOROETHYLENE	<0.050	PPM
TOLUENE	<0.050	PPM
1,2-DICHLDROETHYLENE	<0.050	PPM
1, 1, 1-TRI-CL-ETHANE	<0.050	PPM
1, 1, 2-TRI-CL-ETHANE	<0.050	PPM
TRICHLORDETHYLENE	CO. 050	PPM
TRI-CL-F-METHANE	CO. 050	PPM
VINYL CHLORIDE	CO. 050	PPM
2-BUTANONE	CO. 10	PPM
HEXANE	<0.10	PPM
ACETONE	<0.10	PPM
ETHYL ACETATE	<0.10	PPM

QENESCO, INC., EMP. & ENV. SAFET RALPH E. MOSELY, DIRECTOR 430 GENESCO FARK NASHVILLE TN 37202



4301 FILL SHORO ROAD CHITE 333 NASHVIELE TENNESSEE 37215

(Lab No.

296590

١.	Source of Sample and COMPLETE Sample Identification (GENESCO						
	\sim 0.00 MeV, # 3 \sim 1.00 m \sim						
2.	County Williamson Nearest Town or City BRENTWOOD						
3.	Type of Sample <u>WATER</u>						
4.	Date Collected <u>2/2//86</u> , Time Collected <u>//-56 Am</u>						
	Name of Sampler (Please Print) 1116K Hoobs						
	Names of Others Present at Time Sample Collected						
	Field No. #55 Approximate Vol. of Sample 40 ns/						
8.	Describe field collection procedure and special handling or preservation of this sample						
	WATER - AS PER PROJECT PROTOCOL						
9	Describe how sample conveyed or transported to the laboratory PERSONA TRUCK						
•							
10.	Requested Analyses						

WATER WELL#3 FIELD #8 .

0296590

296590

REFERRING CLIENT

DATE COLLECTED

RESULT

TIME COLLECTED

11:56

RECEIVED **02/21/86**.

02/21/86

CLIENT LAB NO.

REPORTED

GENESCO, INC., EMP. & ENV. SAFET

00000

03/04/86:

TEST

_ . . .

PPM PPM PPM

VOLATILE DRGANICS

ANTHITE DURANTUS	
ACROLEIN	<0.10
ACRYLONITRILE	CO. 10
BENZENE	<0.010
BIS(CHLOROMETHYL)ETH	CO. 010
BROMOFORM	<0 010
CARBON TETRACHLORIDE	<0.010
CHLOROBENZENE	<0.010
CHLORODIBRMETHANE	<0.010
CHLOROETHANE	<0.010
2-CLETHYVINYL ETHER	<0.010
CHLOROFORM	<0.010
DI-CL-BR-METHANE	<0.010
DI-CL-DI-F-METHANE	<0.010
1-1-DICHLORDETHANE	<0.010
1,2-DICHLORGETHANE	<0.010
1,1-DI-CL-ETHYLENE	<0.010
1,2-DICHLOROPROPANE	<0.010
1,2-DI-CL-PROPYLENE	<0.010
ETHYLBENZENE	<0.010
METHYL BROMIDE	<0.010
METHYL CHLORIDE	<0.010
METHYLENE CHLORIDE	<0.010
1,1,2,2 TET CL ETHAN	<0.010
TETRACHLORDETHYLENE	<0.010
TOLUENE	<0.010
1,2-DICHLORDETHYLENE	<0.010
1,1,1-TRI-CL-ETHANE	<0.010
1,1,2-TRI-CL-ETHANE	<0.010
TRICHLORDETHYLENE	<0.010
TRI-CL-F-METHANE	CO. 010
VINYL CHLORIDE	<0.010
2-BUTANONE	CO. 10
HEXANE	<0.10
A O C T O M C	CO 40

REFERENCE LIMITS

UNITS

PPM PPM PPM PPM PPM PPM PPM PPM PPM PPM PPM PPM PPM PPM PPM PPM PPM

PPM

PPM

PPM

GENESCO, INC., EMP. & ENV. SAFET RALPH E. MOSELY, DIRECTOR 430 GENESCO PARK NASHVILLE TN 37202

<0.10

<0.10

4056



ACETONE

ETHYL ACETATE

4201 HILLSBORO ROAD, SUITE 333 NASHVILLE TENNESSEE 37215 (Lab No

593

		arest Town or City BRENTWOOD
I. Type of Sample	WATER	
Date Collected .	2/21/36	Time Collected 1.01 r/M
. Names of Others	Present at Time Sample Collected	oximate Vol. of Sample 40ml
. Field No. <u># /4</u>	Appr	oximate Vol. of Sample 30M/
.		
Describe field co	lection procedure and special handlin AS PER PROJECT PROT	g or preservation of this sample
WATER -	AS PER PROJECT PROT	00.04

REFERRING CLIENT

DATE COLLECTED TIME COLLECTED 02/21/86

RECEIVED 02/21/66 **13**: 07

GENESCO, INC., EMP. & ENV. SAFET

CLIENT LAB NO. 00000

163705783

TEST	RESULT	REFERENCE LIMITS	UNITS
XYLENE	2, 00		PPM
VOLATILE DRGANICS			
ACROLEIN	<0.100		PPM
ACRYLONITRILE	<0.100		PPM
BENZENE	<0.010		PPM
BIS(CHLOROMETHYL)ETH	<0.010		PPM
BROMOFORM	<0.010		PPM
CARBON TETRACHLORIDE	<0.010		PPM
CHLOROBENZENE	<0.010		PPM
CHLORODIBRMETHANE	<0.010		PPM
CHLOROETHANE	<0.010		PPM
2-CLETHYVINYL ETHER	<0.010		PPM
CHLOROFORM	<0.010		PPM
DI-CL-BR-METHANE	<0.010		PPM
DI-CL-DI-F-METHANE	<0.010		PPM
1-1-DICHLOROETHANE	<0.010		PPM
1,2-DICHLOROETHANE	5. 700		PPM
1,1-DI-CL-ETHYLENE	<0.010		PPM
1,2-DICHLOROPROPANE	<0.010		PPM
1,2-DI-CL-PROPYLEME	<0.010		PPM
ETHYLBENZENE	<0.010		PPM
METHYL BROMIDE	<0.010		PPM
METHYL CHLORIDE	<0.010		PPM
METHYLENE CHLORIDE	12.5		PPM
1,1,2,2 TET CL ETHAN	<0.010		Maa
TETRACHLORDETHYLENE	6. 5		PPM
TOLUENE	359. 7		PPM
1,2-DICHLORDETHYLENE	0. 622		PPM
1, 1, 1-TRI-CL-ETHANE	15. 1		PPM
1,1,2-TRI-CL-ETHANE	<0.010		PPM
TRICHLOROETHYLENE	1,00		PPM
TRI-CL-F-METHANE	<0.010		PPM
VINYL CHLORIDE	<0.010		PPM
2-BUTANONE	6. 91		PPM
HEXANE	<0.10		PPM
ACETONE	2. 97		PPM
ETHYL ACETATE	<0.10		PPM

GENESCO, INC., EMP. & ENV. SAFET RALPH E. MOSELY, DIRECTOR 430 GENESCO PARK NASHVILLE TN 37202



2915545

ENGINEERING, DESIGN & GEOSCIENCES GROUP, INC.

4301 HILL SBORO ROAD, SUITE 333 NASHVILLE, TENNESSEE 37215

(Lab No.

İ.	<u> WEH # 7.34440</u> w	e Identification Genesco.
2	County Williamson	Nearest Town or City BRENTWOOD
3.	Type of Sample WATER	
4.	. Date Collected <u>의 / 과 / 월6</u>	Time Collected 1.01 PM
		- Hobbs
۶.	Names of Others Present at Time Sample (CollectedApproximate Vol. of Sample 40 ml
},	Water - As per project	ecial handling or preservation of this sample
) .		nted to the laboratory PERSONAL TRUCK
١.	Requested Analyses	

THE CAME IN CONTRACTOR 0298585

296585

REFERRING CLIENT

02/21/86

DATE COLLECTED TIME COLLECTED

RECEIVED 02/21/86 13:07

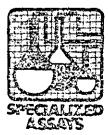
JENESCO, INC., EMP. & ENV. SAFET

CLIENT LAB NO. 00000

P5598496

TEST	RESULT	REFERENCE LIMITS	UNITS
XYLENE	1.8		PPM
VOLATILE ORGANICS			
ACROLEIN	<0.100		PPM
ACRYLONITRILE	CO, 100		PPM
BENZENE	<0.010		PPM
BIS(CHLOROMETHYL)ETH	<0.010		PPM
BROMOFORM	<0.010		PPM
CARBON TETRACHLORIDE	<0.010		PPM
CHLOROBENZENE	<0, 010		PPM
CHLORODIBRMETHANE	<0.010		PPM
CHLORDETHANE	<0.010		PPM
2-CLETHYVINYL ETHER	<0.010		PPM
CHLOROFORM	<0.010		PPM
DI-CL-BR-METHANE	<0.010		PPM
DI-CL-DI-F-METHANE	<0.010		PPM
1-1-DICHLOROETHANE	<0.010		PPM
1,2-DICHLORDETHANE	5. 300		PPM
1,1-DI-CL-ETHYLENE	<0.010		PPM
1,2-DICHLOROPROPANE	<0.010		PPM
1,2-DI-CL-PROPYLENE	<0.010		PPM
ETHYLBENZENE	<0.010		PPM
METHYL BROMIDE	<0.010		PPM
METHYL CHLORIDE	<0.010		PPM
METHYLENE CHLORIDE	10.800		PPM
1,1,2,2 TET CL ETHAN	<0.010		PPM
TETRACHLOROETHYLENE	£. 000		PPM
TOLUENE	361.2		PPM
1, 2-DICHLOROETHYLENE	0.700		PPM
1, 1, 1-TRI-CL-ETHANE	14.300		PPM
1, 1, 2-TRI-CL-ETHANE	<0.010		PPM
TRICHLORDETHYLENE	0.900		PPM
TRI-CL-F-METHANE	<0.010		PPM
VINYL CHLORIDE	<0.010		PPM
2-BUTANONE	6. 58		PPM
HEXANE	<0.10		PPM
ACETONE	2. 96		PPM
ETHYL ACETATE	<o. 10<="" td=""><td></td><td>PPM</td></o.>		PPM

GENESCO, INC., EMP. & ENV. SAFET RALPH E. MOSELY, DIRECTOR 430 GENESCO PARK NASHVILLE TN 37202



4. 31 HE: SBORO FOAD, SUITE 333 NASHVILLE, TENNESSEE 37215

(Lab No.

96591

	Nearest Town or City #RENTWOOD.
Type of Sample <u>WATER</u>	7.6
Name of Sampler (Bloom Brief)	ARK: Hobbs
	imple Collected
Field No. # 12	Approximate Vol. of Sample 46m/
Describe field collection procedure a WATER - AS FER PR	and special handling or preservation of this sample
	ransported to the laboratory Personial Truck

586 New York (1997) 0296591

295591

REFERRING CLIENT

- GENESCO, INC., EMP. & ENV. SAFET

02/20/86

DATE COLLECTED TIME COLLECTED

12: 52 RECEIVED 02/21/86

CLIENT LAB NO.

REPORTED BY

TEST	RESULT	REFERENCE LIMITS	STINU
XYLENE	0, 308		PPM
VOLATILE ORGANICS			
ACROLEIN	<0.10		PPM
ACRYLONITRILE	<0.10		PPM
BENZENE	0.162		PPM
BIS(CHLOROMETHYL)ETH	<0.010		PPM
BROMOFORM	<0.010		PPM
CARBON TETRACHLORIDE	<0.010		PPM
CHLOROBENZENE	<0.010		PPM
CHLORODIBRMETHANE	<0.010		PPM
CHLORDETHANE	<0.010		PPM
2-CLETHYVINYL ETHER	<0.010		PPM
CHLOROFORM	<0.010		PPM
DI-CL-BR-METHANE	<0.010		PPM
DI-CL-DI-F-METHANE	<0.010		PPM
1-1-DICHLOROETHANE	0.801		PPM
1,2-DICHLORDETHANE	1. 200		PPM
1,1-DI-CL-ETHYLENE	0.035		PPM
1,2-DICHLOROPROPANE	<0.010		PPM
1.2-DI-CL-PROPYLENE	<0.010		PPM
ETHYLBENZENE	<0.010		PPM
METHYL BROMIDE	<0.010		PPM
METHYL CHLORIDE	<0.010		PPM
METHYLENE CHLORIDE	2. 200		PPM
1,1,2,2 TET CL ETHAN	<0.010		PPM
TETRACHLOROETHYLENE	0. 688		PPM
TOLUENE	81.80		PPM
1,2-DICHLOROETHYLENE	1.100		PPM
1, 1, 1-TRI-CL-ETHANE	6. 100		PP M
1,1,2-TRI-CL-ETHANE	<0.010		PPM
TRICHLOROETHYLENE	0. 343		PPM
TRI-CL-F-METHANE	<0.010		PPM
VINYL CHLORIDE	<0.010		PPM
2-BUTANONE	3. 15		PPM
HEXANE	0.10		PPM
ACETONE	2. 02		PPM
ETHYL ACETATE	<0.10		PPM

GENESCO, INC., EMP. & ENV. SAFET RALPH E. MOSELY, DIRECTOR 430 GENESCO PARK

NACIULA E

NASHVILLE

TN 37202



4301 HIGE SBORO ROAD SUITE 333 -NASHVIELE, TENNESSEE 37/15

(Lab No

16597

- County - Later	Nearest Town or City BRENTWOOD
Type of Sample <u>WATER</u>	Time Collected 12:42 ft 27
Name of Sampler (Please Print) 27/3/	R Holibo
. Names of Others Present at Time Sample	le Collected
Field No. # //	Approximate Vol. of Sample _ 4元の /
Describe field collection procedure and UATER - AS DER DE	special handling or preservation of this sample ROJECT PROTECOL
Describe how sample conveyed or trans	ported to the laboratory PERSONAL TRUCK
. Requested Analyses	
Requested Analyses	

WATER WELL#9 FIELD #11

TEST

0296597

296597

REFERRING CLIENT

DATE COLLECTED

RESULT

TIME COLLECTED

RECEIVED

02/21/86 CLIENT LAB NO.

02/21/86 REPORTED

GENESCO, INC., EMP. & ENV. SAFET

00000

03/04/86]

REFERENCE LIMITS UNITS

12:42

	VOLATILE ORGANICS		
	ACROLEIN	<0.10	PPM
	ACRYLONITRILE	<0.10	PPM
	BENZENE	<0.010	PPM
	BIS(CHLOROMETHYL)ETH	<0. 010	PPM
•	BROMOFORM	<0.010	PPM
	CARBON TETRACHLORIDE	<0.010	PPM
	CHLOROBENZENE	<0.010	PPM
	CHLCRODIBRMETHANE	<0.010	PPM
	CHLORDETHANE	<0.010	PPM
	2-CLETHYVINYL ETHER	<0.010	PPM
	CHLOROFORM	<0.010	PPM
	DI-CL-BR-METHANE	<0.010	PPM
	DI-CL-DI-F-METHANE	<0.010	PPM
	1-1-DICHLOROETHANE	0. 258	PPM
	1,2-DICHLORDETHANE	0.063	PPM
	1,1-DI-CL-ETHYLENE	<0.010	PPM
	1,2-DICHLOROPROPANE	<0.010	PPM
	1,2-DI-CL-PROPYLENE	<0.010	PPM
	ETHYLBENZENE	<0.010	PPM
	METHYL BROMIDE	<0.010	РРМ
	METHYL CHLORIDE	<0.010	PPM
	METHYLENE CHLORIDE	0.025	PPM
	1,1,2,2 TET CL ETHAN	<0.010	PPM
	TETRACHLOROETHYLENE	<0.010	PPM
	TOLUENE	<0.010	PPM
	1,2-DICHLOROETHYLENE	O. 184	PPM
	1,1,1-TRI-CL-ETHANE	0.095	PPM
	1, 1, 2-TRI-CL-ETHANE	<0.010	PPM
	TRICHLOROETHYLENE	<0.010	PPM
	TRI-CL-F-METHANE	<0.010	PPM
	VINYL CHLORIDE	<0.010	PPM
	2-BUTANONE	<0.10	PPM
	HEXANE	<0.10	PPM
	ACETONE	0. 5 9	PPM
	ETHYL ACETATE	<0.10	PPM

GENESCO, INC., EMP. & ENV. SAFET RALPH E. MOSELY, DIRECTOR 430 GENESCO PARK NASHVILLE TN 37202



4301 HILLSBORO ROAD, SUITE 323 NASHVILLE, TENNESSEE 37215

(Lab No.

2.	County Williamson Nearest Town or City BRENTWOOD
3	Type of Sample WATER
4.	Name of Sampler (Please Print) MARK Hobbs
5.	Name of Sampler (Please Print) // ARK Honbs
6	Names of Others Present at Time Sample Collected
7.	Field No. # 10 Approximate Vol. of Sample 45'01
8.	Describe field collection procedure and special handling or preservation of this sample
9.	Describe how sample conveyed or transported to the laboratory _PERSONAL TRUCK
10.	Requested Analyses

the control of the co

WATER WELL #1 FIELD #10		01.95592		296592
REFERRING CLIENT	DATE GOLLECT	ED TIME	COLLECTED	RECEIVED
ALF EMMING DETERM	02/21/86	CLIENT LAB NO	12: 27	02/21/86 REPORTED
GENESCO, INC., EMP. & ENV.	SAFET	00000		03/04/86
TEST	RESULT	REFERENC	CE LIMITS	UNITS
VOLATILE ORGANICS				
ACROLEIN	<0.10			PPM
ACRYLONITRILE	<0.10			PP M
BENZENE	<0.010			PPM
BIS(CHLOROMETHYL)ETH	<0.010			P M d€
BROMOFORM	<0.010			PPM
CARBON TETRACHLORIDE	<0.010			PPM
CHLOROBENZENE	<0.010			PPM
CHLORODIBRMETHANE	<0.010			PPM
CHLORDETHANE	<0.010			PPM
2-CLETHYVINYL ETHER	<0.010			PPM
CHLOROFORM	<0.010			PPM
DI-CL-BR-METHANE	<0.010			PPM
DI-CL-DI-F-METHANE	<0.010			PPM
1-1-DICHLOROETHANE	0.116			PPM
1,2-DICHLOROETHANE	0.030			PPM
1, 1-DI-CL-ETHYLENE	0.011 <0.010			PPM
1, 2-DICHLOROPROFANE	<0.010			PPM PPM
1, 2-DI-CL-PROPYLENE	<0.010			PPM
ETHYLBENZENE	<0.010 <0.010			
METHYL BROMIDE				PPM PDM
METHYL CHLORIDE	<0.010 0.050			PPM PPM
METHYLENE CHLORIDE	<0.030 <0.010			PPM
1, 1, 2, 2 TET CL ETHAN	<0.010			PPM
TETRACHLOROETHYLENE TOLUENE	1, 156			PPM
1,2-DICHLOROETHYLENE	0. 446			PPM
1, 1, 1-TRI-CL-ETHANE	<0.010			PPM
1, 1, 2-TRI-CL-ETHANE	<0.010			PPM
TRICHLORDETHYLENE	<0.010			PPM
TRI-CL-F-METHANE	<0.010			PPM
VINYL CHLORIDE	<0.010			PPM
2-BUTANONE	0.53			PPM
HEXANE	<0.10			PPM
ACETONE	0. 47			PPM
				5011

GENESCO, INC., EMP. & ENV. SAFET RALPH E. MOSELY, DIRECTOR 430 GENESCO PARK

<0.10

NASHVILLE TN 37202



PPM

ETHYL ACETATE

4301 HILLSBORO ROAD, SUITE 333 NASHVILLE, TENNESSEE 37215

(Lab No.

County Williamson	Nearest Town or City BRENTWOOD
Type of Sample WATER	
Date Collected 2/21/36	Time Collected
Name of Sampler (Please Print) . <i>IY</i> I	Time Collected 12:10 9RK_110BB5
Names of Others Present at Time Sam	ple Collected
Field No. <u># 9</u>	Approximate Vol. of Sample <u>40 m /</u>
	od special handling or preservation of this sample PROJECT PROTOCOL
	nsported to the laboratory PERSONAL TRUCK
Describe how sample conveyed or train	
Don and Angles	S587

1.15 Continued to the Continued Committee to the first WATER WELL#2 FIELD #9 0296587 296587 DATE COLLECTED TIME COLLECTED RECEIVED REFERRING CLIENT 02/21/86 12:10 02/21/85 CLIENT LAB NO. REPORTED GENEBOD, INC., EMP. & ENV. SAFET 00000 03/04/86 TEST RESULT REFERENCE LIMITS UNITS

		3.47.0
VOLATILE ORGANICS	50.10	551
ACROLEIN	<0.10	PPM
ACRYLONITRILE	<0.10	PPM
BENZENE	<0.010	PPM
BIS(CHLOROMETHYL)ETH	<0.010	PPM
BROMOFORM	<0.010	PPM
CARBON TETRACHLORIDE	<0.010	PPM
CHLOROBENZENE	<0.010	PPM
CHLORODIBRMETHANE	<0.010	PPM
CHLORDETHANE	<0.010	PPM
2-CLETHYVINYL ETHER	<0.010	PPM
CHLOROFORM	<0.010	PPM
DI-CL-BR-METHANE	<0.010	PPM
DI-CL-DI-F-METHANE	<0.010	PPM
1-1-DICHLOROETHANE	<0.010	PPM
1,2-DICHLOROETHANE	<0.010	PPM
1,1-DI-CL-ETHYLENE	<0.010	PPM
1,2-DICHLOROPROPANE	<0.010	PPM
1,2-DI-CL-PROPYLENE	<0.010	PPM
ETHYLBENZENE	<0.010	PPM
METHYL BROMIDE	<0.010	PPM
METHYL CHLORIDE	CO. 010	PPM
METHYLENE CHLORIDE	<0.010	PPM
1, 1, 2, 2 TET CL ETHAN	<0.010	PPM
TETRACHLORDETHYLENE	<0.010	PPM
TOLUENE	<0.010	PPM
1,2-DICHLOROETHYLENE	<0.010	PPM
1, 1, 1-TRI-CL-ETHANE	<0.010	PPM
1, 1, 2-TRI-CL-ETHANE	<0.010	PPM
TRICHLOROETHYLENE	<0.010	PPM
TRI-CL-F-METHANE	<0.010	PPM
VINYL CHLORIDE	<0.010	PPM
2-BUTANONE	<0.10	PPM
HEXANE	<0.10	PPM
ACETONE	0. 82	PPM
ETHYL ACETATE	<0.10	PPM

GENESCO, INC. EMP. & ENV. SAFET RALPH E. MOSELY, DIRECTOR 430 GENESCO PARK NASHVILLE TN 37202

Engineering, Devictin & Groschences Group, Loca

March 24, 1986

EDGe

Mr. Ronnie Bowers Environmental Specialist/Chemist Tennessee Division of Superfund Customs House, Fourth Floor 701 Broadway Nashville, TN 37219-5403

Re: Kennon Property
Analytical Results

Dear Mr. Bowers:

The enclosed analytical reports present the arsenic, chromium and lead results obtained from the samples we collected on February 21, 1986. Under my cover letter dated March 19, 1986, I submitted the results of the volatile organics analytical effort associated with these same samples.

If you have any questions, please advise.

Very truly yours,

ENGINEERING, DESIGN & GEOSCIENCES GROUP, INC.

V. Wayne McCoy Project Manager

VWM/lls Enclosure

SPECIMENTUL INCOME

AUGUSTICA AC 310505

WATER WELL #6 FIELD #1 296586 يتمام ماليك الأراب الأمام بعيرتك بالمال التفاري

0310505

TIME COLLECTED

00:00

RECEIVED. 03/20/86

REFERRING CLIENT 02/21/86

CLIENT LAB NC.

REPORTED S

OENESCO, INC., EMP. & ENV. BAFET - 100000 100000 100000 03/20/86

DATE COLLECTED

TEST]	RESULT		REFEREN	ICE LIMITS	UNITS
			A Committee of the Comm			1 1111	
ARBENIC LEAD			<0.001 <0.001			•	PPM
CHROMIUM, TOTAL		-	<0.005				A STORY OF THE STORY
			• •		}		the said of the
					2.0		
							9.5
		!			1		
					† •		
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	•		e San San San San San San San San San San				
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			.			•	
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							Sandra (M. 1975) State of the Sandra (M. 1975) Sandra (M.
							्री देशी हैं जिसे शहर है जिसे हैं। अर्थ के में में स्टब्स की जिसे हैं जिसे हैं।
			· <u>.</u> .		1		
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GENESCO, INC., EMP. & ENV. BAFET RALPH E. MOSELY, DIRECTOR 430 GENESCO PARK NASHVILLE TN 37202

4056



ACCESSION NO

RECEIVED

POND SEDIMENT FIELD #2

TEST

ARBENIC

CAROMIUM, TOTAL

COMMENT

DEAD

0310518

310518

REFERRING CLIENT

GENEBOD, INC., EMP. & ENV. BAFET

DATE COLLECTED

TIME COLLECTED

02/21/86

CLIENT LAB NO.

00:00

. 00000 - 276579

03/20/84 REPORTED : a£03/20/85

SPECIALLY CYCALLY

RESULT

3, 8

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15. 3

VALUES, WET WEIGHT

REFERENCE LIMITS

UNITS

THE WEST PPM STORY

PPM

PRM MALLE

GENESCO, INC., EMP. & ENV. SAFET RALPH E. MOSELY, DIRECTOR 430 GENESCO PARK NASHVILLE TN 37202

4036



rother.

AUDESSION NO

NATER POND FIELD #3

0310513

310513

OF ELMINEH BY IN 1914

DATE COLLECTED

TIME COLLECTED

RECEIVED 03/20/66

REFERRING CLIENT

02/21/86

00:00 CLIENT LAB NO.

REPORTED -

QENESCO: INC., EMP. & ENV. BAFET

00000 276594

2 03/20/84

	The transfer of the second sec	The second of the second secon
TEST	RESULT	REFERENCE LIMITS UNITS
	A THE COLUMN THE PROPERTY OF THE PARTY OF TH	
ARSENIC LEAD	<0.001 <0.001	PPM
CHROMIUM, TOTAL	<0.005	15 OF SAME PROPERTY.
and the second	. 1	Le la granda massega
· 7 · · ·		The second secon
The Market		
		The state of the s
	A Commence of the Commence of	
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And the second s	The second secon	
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1 to 1 to 1 to 1 to 1 to 1 to 1 to 1 to	Action 15	
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GENESCO, INC., EMP. & ENV. SAFET RALPH E. MOSELY, DIRECTOR

430 GENESCO PARK

NASHVILLE

TN 37202 4056



206 12th Ave., So. - Nashville, TN 37203 Phone 1-615-255-5786 .

SELCOMEDIA O NUMBER

ACCEDICATION IN

WATER WELL #8 FIELD #4 296584 .

0310503

310503

REFERRING CLIENT

DATE COLLECTED

TIME COLLECTED

RECEIVED

02/21/86

CLIENT LAB NO.

00:00 03/20/86

REPORTED: 03/20/84

GENEBOD, INC. EMP. & ENV.	BAFET	00000 03/20/B
TEST	RESULT	REFERENCE LIMITS UNITS
· · · · · · · · · · · · · · · · · · ·	A Company of the Company	
ARSENIC LEAD CHROMIUM, TOTAL	0.002 <0.001 <0.005	PPM PPI
	** * * * * * * * * * * * * * * * * * * *	Control of the Contro
·		A Company of the Comp
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		(1) 10 10 10 10 10 10 10 10 10 10 10 10 10
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GENESCO, INC., EMP. & ENV. SAFET RALPH E. MOSELY, DIRECTOR 430 GENESCO PARK NASHVILLE TN 37202

4056



11 ECHNOLIN 2 11 - 18 WATER WELL #8 FIELD #5

Sugar Standard Commence 0310515

02/21/66

DATE COLLECTED TIME COLLECTED

00:00

RECEIVED 03/20/86 REPORTED

Acade Contractor

310515

REFERRING CLIENT

GENEBOO, INC., EMP. G. EMY. BAFET ...

CLIENT LAB NO.

C3000 2 276596 2 276596

GENEROU,	INC. JEHR, G. ENV.			2. 100.00 (1. 100.00)
	TEST	RESULT		REFERENCE LIMITS UNITS
	Paris and Sandarian		en e 🚅 i speli	
ARSENIC	+ + ++, - + 4 <u>2</u> 2	CO. 001		PPM
CHROMIUM,	TOTAL TOTAL	" La alaa alaa		The second of the Property of the second of
			• -	A STORY A COLUMN
			; ;	
			S. S. Aspek	the state of the s
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	i kanalan kanalan kanalan kanalan kanalan kanalan kanalan kanalan kanalan kanalan kanalan kanalan kanalan kana			
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Name of the state				The state of the s

GENESCO, INC., EMP. & ENV. GAFET RALPH E. MOSELY, DIRECTOR 430 GENESCO PARK TN 37202 NASHVILLE

4056



206 12th Ave., So. - Nashville, TN 37203 Phone 1-615-255-5786

WATER WELL #8 FIELD 45

0310515

310515

REFERRING CLIENT

DATE COLLECTED

TIME COLLECTED

02/21/96

CLIENT LAB NO.

00:00

03/20/86' REPORTED

RECEIVED

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ESCO, INC. EMP. & ENV. BAFET
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206 12th Ave., So. 3 Nashville; TN 37 Phone 1-615-255-5786

KENNON SITE

Site No. TND 981473575

Reference No. 9 HRS Manual

KENNON SITE

Site No. TND 981473575

Reference No. 10

May 21, 1985

Mr. Tom Tiesler
Director
Division of Solid Waste Management
Department of Health and Environment
4th Floor, Custom House
701 Broadway
Nashville, Tennessee 37219-5403

Dear Tom:

The purpose of this letter is to advise you of a chemical waste site once used by a division of Genesco Inc. (the "Company" or "Genesco") and to solicit the assistance and approval of the Tennessee Department of Health and Environment (the "Department") with respect to certain actions the Company proposes to take.

The Company is a Tennessee corporation with its executive offices located at Genesco Park, Nashville, Tennessee. Genesco operates in two major industry segments footwear and men's apparel - and employs approximately 3,900 persons in the State of Tennessee. General Adhesives, formerly known as General Adhesives and Chemical Company, is a division of Genesco's footwear segment which operates a manufacturing plant at 6100 Centennial Boulevard in Nashville, Tennessee. General Adhesives manufactures and sells specialty industrial and consumer products, which include adhesives, sealants and coatings utilizing solvent based, thermoplastic and water based technologies. It is a generator (EPA I.D. Number TND 001981240) and transporter (EPA I.D. Number TND 001367549) of hazardous waste currently disposed of at either the Stauffer Chemical Company, Mt. Pleasant, Tennessee or Chemical Waste Management Company, Emelle, Alabama.

It has recently been brought to the attention of Genesco's corporate management that for a limited period of time during the summer and/or fall of 1978, approximately eight hundred 55-gallon barrels of waste material from General Adhesives were disposed of in a rural area in Williamson County, Tennessee. Preliminary indications are that some of the waste

Genesco Inc. Genesco Park Nashville TN 37202 Mr. Tom Tiesler May 21, 1985 Page 2

(approximately 50-80 barrels) was buried in the barrels and the remainder was poured from barrels into phosphate pits or earthen trenches. The disposal site is an approximately two acresection of a 146 acre farm owned by Emmett N. Kennon located in the fifteenth civil district of Williamson County, Tennessee on the east side of Wilson Pike between Moores Lane and Split Log Road (the "Kennon Property"). Enclosed is a copy of a map showing the location of the Kennon Property and the approximate location of the disposal site.

The exact amount and contents of the waste material are unknown; however, it is believed that it contained water based adhesives and may have contained acetone; ethyl acetate; hexane; methylene chloride; methyl ethyl ketone; rubber solvent; toluene; l,l,l-trichloroethane; trichloroethylene and organic fillers. A large portion of the organic solvents that was poured into the phosphate pits and earthen trenches may have evaporated, but it is believed that approximately 50-80 barrels were buried on the Kennon Property and may still contain waste material.

Having been informed of the reported waste disposal, corporate management immediately instructed its counsel to undertake an investigation of this matter. Based on the preliminary findings of that investigation, the Company developed the general plan of action outlined herein and arranged for a meeting with you. The plan has been developed in consultation with Mr. V. Wayne McCoy of Resource Consultants Inc. of Brentwood, Tennessee. Implementation of the plan calls for the employment of hydrogeologists, soil geologists and other experts, possibly including a waste disposal firm.

The details of the plan and the retention of experts and others to carry out the plan are subject to the Department's approval, and representatives of the Department are invited to observe or participate in all aspects of its implementation.

The first phase of the plan, as proposed by Genesco, is designed, through hydrogeological study, to:

- 1. Identify more specifically the area and volume of the land area on the Kennon Property that has been used for disposal of waste generated by General Adhesives;
- 2. Determine the extent to which chemical waste generated by General Adhesives is still present in the soil in and around the disposal site;

Mr. Tom Tiesler May 21, 1985 Page 3

- 3. Determine the existence and direction of possible surface water flows and subsurface aquifers in and around the disposal site;
- 4. Determine if any of the chemicals generated by General Adhesives is present in any surface water or groundwater in and around the disposal site; and
- 5. Develop a report regarding the environmental impact and preliminary recommendations for any corrective action indicated.

Subject to Department approval, Genesco proposes to retain the services of Resource Consultants and Geologic Associates Inc. of Franklin, Tennessee, as soon as possible to perform the initial surveys, tests and analyses to define the nature and extent of any environmental problem that may exist on the Kennon Property and surrounding area.

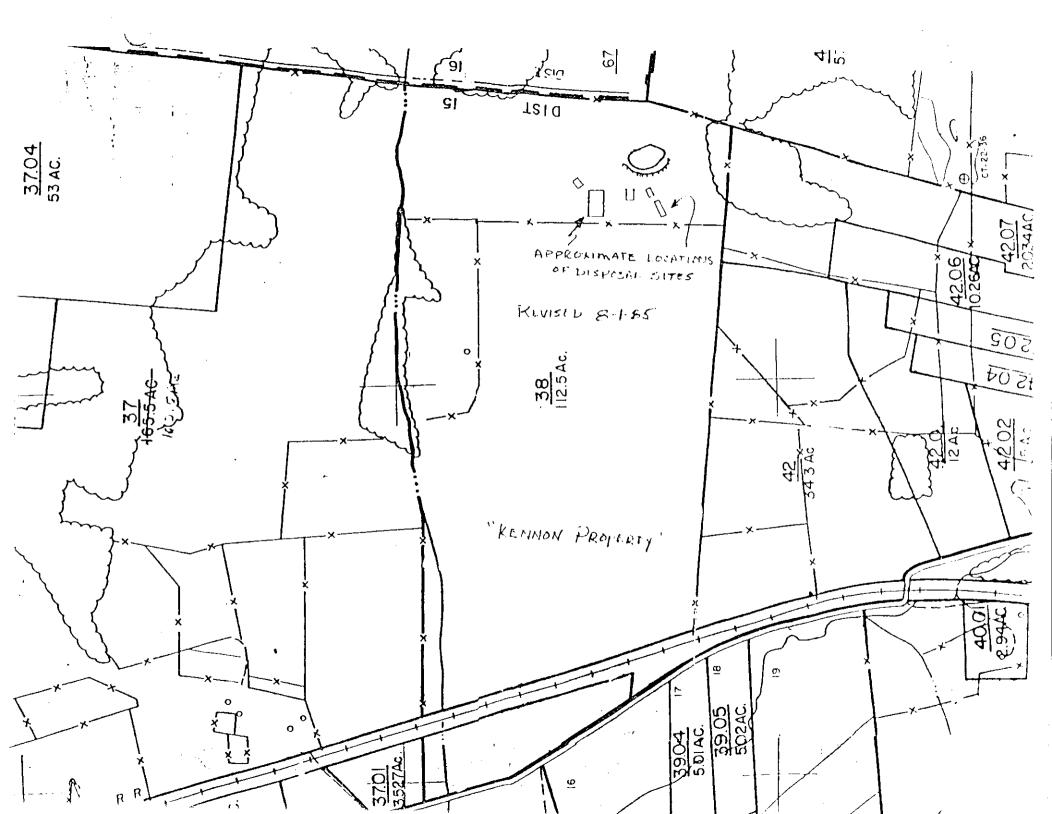
Genesco will meet with appropriate Department representatives to review the results of the surveys, tests and analyses and to more fully develop any preliminary plan for any remedial action.

If waste removal and site cleanup is required, the Company will retain the services of a Department-approved firm to excavate, exhume, analyze, transport and dispose of contaminated material. Any cleanup and removal required will be subject to necessary pre-closure site tests and analyses conducted by Geologic Associates Inc. or other approved firms.

Sincerely,

Ralph Mosel

Director



KENNON SITE

Site No. TND 981473575

Reference No. 11

COMMISSIONERS



City of Brentwood

P.D. BOX 788, 116 WILSON PIKE

BRENTWOOD, TENNESSEE 37027

TELEPHONE (615) 378-9011 371-0060

T. MACK BLACKBURN MAYOR PHILLIP HARDEMAN VICE MAYOR FRANK W. CLIFTON, JR. CITY MANAGER

T MACK BLACKBURN PHILLIP HARDEMAN HAROLD J. McMURTRY BRIAN J. SWEENEY RICHARD L. VAUGHN

February 19, 1986

Mr. Donald Shackleford Tennessee Department of Health and Environment 701 Broadway, 4th floor Customs House Nashville, TN 37219-5403

Dear Mr. Shackleford:

Based on our previous conversations and our meeting with Dr. Bruner and Mayor Blackburn, the following cost estimates are provided:

Alternative 1

6" Ductile Iron Pipe from Alamo Drive to the intersection of Split Log Road and Wilson Pike and east on Split Log Road to the existing city limits and south on Wilson Pike to the existing city limits.

37	L.F. of 6" DI Pipe at \$14/LF 6" Gate Valves at \$400 each Fire Hydrants at \$1,100 each Railroad Crossing (Tunnelled) Pavement Repairs 300 LF at \$12/LF Crushed Stone 8,000 LF at \$1/LF Meters/Boxes 25 at \$200 each Service Lines 625 LF at \$4/LF Engineering (6%) Inspection (4%) Contingency (10%)	Ф	238,000 14,800 26,400 20,000 3,600 8,000 5,000 2,500 19,100 12,700 31,400
	Total Estimated Cost	\$	382,000

Mr. Donald Shackleford February 19, 1986 Page two

Alternative 2

Instead of 6" Ductile Iron Pipe use Class 200 PVC Pipe at an estimated cost of \$7/LF instead of \$14/LF for Ductile Iron. All other factors remain the same, a savings of \$119,000 is realized. Total revised project cost will be \$263,000.

Alternative 3

Replacing the proposed minimum 6" Ductile Iron Pipe with a 12" Ductile Iron Pipe to provide adequate water supply for future growth. A revised cost estimate is as follows:

16,000 L.F. of 12" Ductile Iron Pipe at \$28/LF 500 L.F. of 6" Ductile Iron Pipe at \$14/LF 12" Gate Valves13 at \$900 each 6" Gate Valves24 at \$400 each Fire Hydrants24 at \$1,100 each Railroad Crossing (Tunnelled) Pavement Repairs300 L.F. at \$12/LF Crushed Stone8,000 L.F. at \$1/LF Meters/Boxes25 at \$200 each Service Lines 625 L.F. at \$4/LF Engineering (6%) Inspection (4%) Contingency (10%)	448,000 7,000 11.700 9,600 26,400 20,000 3,600 8,000 5,000 2,500 33,400 22,300 55,700
Total Estimated Cost	\$ 668,000

Alternative 4

Instead of 12" Ductile Iron Pipe Use Class 200 PVC Pipe at an estimated cost of S14/LF instead of \$28/LF for Ductile Iron. All other factors remain consistent, a savings of \$227,500 is realized. Total revised project cost will be \$440,500.

In addition to one of the above options the City will be required to bring a second feeder line into the new proposed line. This second feeder will come down Wilson Pike from Concord Road to the new connection off of Alamo Drive. The approximate length of this additional line is estimated to be 4,500 L.F. This second feeder line will cost additionally above alternatives 1-4 (depending on the option selected) as follows:

Mr. Donald Shackleford February 19, 1986 Page three

- 12" Ductile Iron Pipe	180,00
- 12" Class 200 PVC	115,60

Summarizing

To effectively get a reliable source of public water to area in question would cost a minimum of \$327,800 and under the most desirable conditions, using 12" PVC Class 200 Pipe, \$556,500. These estimates would be subject to actual bids.

If Class 200 PVC Pipe is allowable under these conditions, I feel the City would want to install the 12" line as a minimum, understanding that the City would have to pick up the cost difference between the 12" and 6" pipe and the second feeder to the area in question.

Based on the above calculations, I feel a reasonable estimate of cost sharing on this project would be:

Local Sources State and/or Pollution Offenders	\$ 293,100 263,000
Total Estimated Cost	\$ 556,100

Please recognize that these figures include no cost for right-of-way acquisition or condemnation expenses.

This information is being provided the Brentwood City Commission for their review and knowledge. We will await further contact from your office with regards to proceeding with any additional action.

Respectfully.

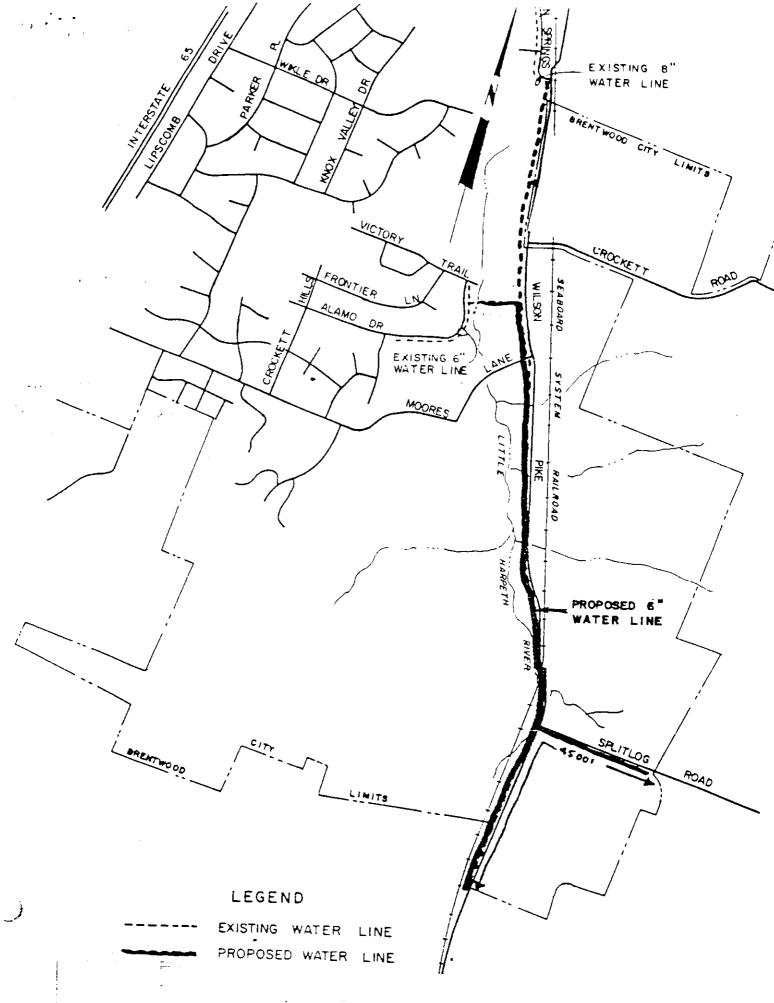
rank W. Clifton, Jr.

City Manager

cc: Mayor and City Commission

City Attorney Robert H. Jennings, Jr.

FWC:NS



KENNON SITE

Site No. TND 981473575

Reference No. 12

GENESCO

OR - 8/4 AUS 0 1 1936 CHP-6/

Employee and Environmental Safety

Mr. Frank W. Clifton, Jr. City Manager City of Brentwood P.O. Box 788 Brentwood, TN 37027

RE: SERVICE CONNECTIONS

July 28, 1986

Dear Frank:

As we discussed with you and with John Grissom, an estimate of the cost of each service connection prior to installation would probably be the best method of insuring we are in agreement of the costs involved.

To facilitate the cost estimates, we asked Bill Griggs of Barge, Waggoner, Sumner and Cannon, to meet with John Grissom, Manager of Water Service of the City of Brentwood, to estimate distances and size of service line needed, etc. Attached is his report.

Bill's basic assumption on sizes, etc. was to assume that your storage tank would be 50% full, a residual pressure of 20 psi would be maintained, and that 10 GPM would be adequate for each residence.

There are questions we have involving three service connections that we would like to ask either John Grissom or the contractor to clarify:

It would appear to be much more cost effective to combine the service lines to the three residences on the Sharp property, and to extend the service connection to Mr. Reese Smith's house back down the hill to connect to Woodrow Shaw's residence (Mr. Smith's tenant). If a common service line is not applicable, we would still prefer a common trench.

If you could have someone clarify this before we proceed further, it would expedite the cost estimating process.

As quickly as the cost estimates are submitted, we will have a prompt review, so we could proceed without undue delay.

Genesco Inc. Genesco Park Nashville TN 37202 Mr. Frank W. Clifton July 28, 1986 Page two

Thank you for your assistance.

Sincerely,

Ralph E. Mosely

Director

Employee and Environmental Safety

RM/bb

cc: Mr. John Grissom - City of Brentwood

Mr. Bill Griggs - Barge, Waggoner, Sumner & Cannon

Mr. Don Shackelford - Tennessee Dept. of Health & Environment

RECOMMENDED SERVICE LINE SIZES
BRENIWOOD WATER LINE
FILE 9835

Dan VIB. C.

1 MILE RADIUS

- Charles Powers, Superfund

Reld Contin

							,
 .	Address	Parcel	Elev.	Estimated Dist. from Road, Ft.	Service Line Size, In.	Available	Remarks
		54-39.15	730	200	3/4	13	
		54-39.14	720	400	3/4	10	
		54-39.13	720	200	3/4	14	
1)		54-39.11	725	175	3/4	14	
		54-39.10	725	175	3/4	14	
			730	150	3/4	15	
am			730	300	3/4	10	
			750	600	1	14	1
			750	600	1	14	
		54-39.04	760	600	1	13	
		54-39.05	770	600	1	12	
		54-42.01	760	200	3/4	11	
	-	54-42.02	760	500	1	15	
		54-40	760	600	1	14	
		54-40	820	2,000	2	25	
·		54–40	780	1,800	1-1/2	18	
		61-5	830	1,500	2	25	

 $^{^1}$ John Orisson was unsure of exact location. Includes head loss through meter, minimal loss through 12" main, tank 50% full, and 20 psi residual pressure.

Name	Address	Parcel	Elev.	Estimated Dist. from Road, Ft.	Service Line Size, In.	Available GFM	Remarks
		61-5	830	1,700	2	23	
		61-5	810	1,200	1-1/2	17	2
			770	250	1	20	
			780	250	1	19	
			765	600	1	13	
			760	200	3/4	11	
			790	400	1	13	
			785	400	1	14	
			790	700	1	10	
			800	150	3/4	10	
			825	600	1-1/2	20	
			765	500 ⁴	1	14	
			790	400	1	13	
			720	600	1	16	

Served from Split Log Road. 3 Includes head loss through meter, minimal loss through 12" main, tank 50% full, and 20 psi residual pressure. 4 No existing house, assumed distance.

KENNON SITE

Site No. TND 981473575

Reference No. 13

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT

OFFICE CORRESPONDENCE

DATE:

March 6, 1987

TO:

SIU Files - Kennon Site (Genesco)

FROM:

Thomas A. Moss, DSF

Jan

SUBJECT: Details of Conversation - pertinent site information.

On March 6, 1987 at 7:30 a.m., Thomas A. Moss of the Superfund Division contacted Ronnie L. Bowers of the Superfund Division regarding the Kennon Site (Genesco) sample results, water use.

FROM

TO

DATE

Details of conversation:

The first set of results at the Mallory Well and Fletcher Well are suspect. At the first sampling from the tap at the Mallory Well, it was not known that Mallory had used a rubber hose instead of PVC from the well to the tap. The second time, the well was bailed and diethyl phthalate did not show up.

Hackett Spring is the nearest drinking water source to the site. The Little Hampeth is very shallow except for small pools. Mr. Bowers has seen fish in the pools, but has never seen anyone fishing in the 1 1/2 years he has been involved with the site. Glass Creek is intermittent.

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KENNON SITE

Site No. TND 981473575

Reference No. $14\xi 15$

OVERSIZED DOCUMENT

KENNON SITE

Site No. TND 981473575

Reference No. ____1 €

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT

OFFICE CORRESPONDENCE

DATE:

April 24, 1987

TO:

Kennon Site (Genesco) File

FROM:

Thomas A. Moss, DSF

SUBJECT: Ground Water Use Survey/House Count For 3 Mile Radius

FROM TO DATE

On April 22, 1987 Gordon S. Caruthers-DSF and Thomas A. Moss-DSF visited utilities covering the area within the three mile radius of the site. The area is covered by Brentwood, Nolensville, Mallory Valley, Franklin, and Milcrofton. We spoke with Larry Moore of the Brentwood Utilities; Jim Dunn of Mallory Valley Utilities; and Sara Strasser of Nolensville Utilities and were shown where their lines run and placed the information on a 3 mile radius map. We then drove the roads within the 3 mile radius, counting those houses without water meters, excluding houses within the one mile radius. We did not count houses within one mile radius - houses within one mile (31 houses) were run water from Brentwood as a part of remedial action paid for by Genesco. The house count beyond the one mile radius within three miles was 77. This would give a total of 108 houses within three miles for population of 410, using 3.8 people per house.

TAM/ib

Thomas a. moss

FROM	DATE
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KENNON SITE

Site No. TND 981473575

Reference No. 17

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TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT

OFFICE CORRESPONDENCE

DATE:

March 10, 1987

TO:

SIU Files - Kennon Site (Genesco)

FROM:

Thomas A. Moss, DSF

SUBJECT: Details of Telecon - pertinent site information.

On March 10, 1987 at 7:40 a.m., Thomas A. Moss of the Superfund Division contacted Robin Bowie of the Williamson County Soil Conservation Service by telephone regarding surface and ground water use for irrigation in the area of the Genesco site.

Details of conversation:

Mr. Bowie is familiar with the area where the Genesco site is located. Mr. Bowie stated that to his knowledge, there is no irrigation by wells or streams within 3 miles of the site. Mr. Bowie is sure there is some fishing done by kids in the Little Harpeth River between Split Log Road and Concord Road.

TAM/ib

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FROM	TO	DATE
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KENNON SITE

Site No. TND 981473575

Reference No. 18

TENNESSEE WILDLIFE RESOURCES AGENCY

ELLINGTON AGRICULTURAL CENTER
P. O. BOX 40747
NASHVILLE, TENNESSEE 37204

December 19, 1985

Mr. Gordon Caruthers
Solid Waste Management Division
Department of Health & Environment
701 Broadway
Nashville, TN 37219

Dear Gordon:

In response to your call of December 19, I am happy to enclose descriptions of critical wildlife habitat of Tennessee, as designated by the U.S. Fish and Wildlife Service.

Please advise if I can be of further assistance.

Sincerely,

TENNESSEE WILDLIFE RESOURCES AGENCY

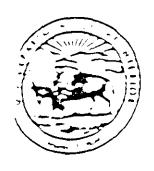
Robert M. Hatcher, Coordinator Nongame/Endangered Species

RMH/ch enc.

Proposed Rules (Region 4)

(E = Endangered; T = Threatened; CH = Critical Habitat: S/A = Classified under similarity of appearance provision)

SPECIES	LOCATION	DETERMINATION	FEDERAL REGISTER
Trispot Darter (Etheostoma trisella)	Conasauga River, Coahulla Creek, TN, GA	A E, CH	07/13/84
Prickly-ash (Zanthoxylum thomasianum)	PR, VI	Ε	02/11/85
Dismal Swamp Southeastern Shrew (Sorex longinostris fisheri)	VA and NC	T	07/16/85
Short's Goldenrod (<u>Solidago</u> shortii)	Robertson, Nicholas, Fleming Co., KY	Ε	10/11/84
Key Largo Cotton Mouse and Woodrat	N. Key Largo, FL	СН	02/09/84, 05/31/64, 11/21/84
Prickly Apple Cactus (Cereus eriophorus var. Tragrans)	St. Lucie Co., FL	· E	03/06/85
Longspurred Balm (Dicerandra cornutissima) Scrub Balm	Marion Co., FL	Ε	
(Dicerandra frutescens)	Highlands Co., FL	£	03/28/85
Canby's Dropwort (Oxypolis canbyi)	Burke, Lee, Sumter So. Scotland Co., NO; Bamb	, GA;	
(OXYDOTIS CENDYT)	Colleton Co., SC; MD	Ξ΄,	03/28/85
Florida Golden Aster (Chrysopsis floridama)	Hillsborough and Pinellas Counties, FL	ξ	08/05/85
Pondberry (Lindera melissifolia)	AR: Clay Co. MS: Sharkey Co. MO: Ripley Co. NC: Bladen Co. SC: Berkeley Co. GA: Wheeler Co.	···· •••	08/13/85





ENDANGERED AND THREATENED

WILDLIFE AND PLANTS

JULY 20, 1984

50 CFR 17.11 and 17.12

Department of the Interior U.S. Flan and Wilcillie Service

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Republication of the Lists of Endangered and Threatened Species

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Service republishes the U.S. Lists of Endangered and Threatened Wildlife and Plants. The last complete republication was May 20, 1980 (45 FR 33768–33781). Minor changes, principally in names of the species, are incorporated in this republication.

DATES: This rule is effective on July 27, 1983.

ADDRESSES: Comments concerning this republication should be sent to the Associate Director—Federal Assistance, Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C. 20240.

FOR FURTHER INFORMATION CONTACT: Mr. John L. Spinks, Jr., Chief, Office of Endangered Species, U.S. Fish and Wildlife Service, Washington, D.C. 20240 (703/235–2771).

SUPPLEMENTARY INFORMATION:

Background

These lists contain the names of species officially listed as Endangered or Threatened under the Endangered Species Act of 1973, as amended (16) U.S.C. 1531, et seq.) through the date of this republication. The listing regulations promulgated under that Act are found at 50 CFR Part 424 and are under revision to conform to the Endangered Species Act Amendments of 1982 (Pub. L. 97-304, 95 Stat. 1411). The previous compilation of these lists appears in the 1982 edition of the Code of Federal Regulations for Title 50, which was actually issued in early 1963. That compliation was effective through October 1, 1982. This republication of §§ 17.11 and 17.12 incorporates all subsequent changes (i.e., additions, reclassifications, and deletions) published as Final Rules in the Federal Register.

In addition to those changes, the Service has made extensive revisions on some of the entries. Most of these changes reflect current nomenciature. The entries for the common and scientific names of many plants and animals are amended by adding synonyms, indicated by the use of (=). Synonyms aid law enforcement officials, importers, exporters, and many others

who routinely use these names by identifying alternative names that may appear in documents and other references.

The species named in these lists were placed there either by the U.S. Fish and Wildlife Service. Department of the Interior, or jointly by that Service and the National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Department of Commerce. References to "Services" in the text of §§ 17.11 and 17.12 refer to those two agencies. The Fish and Wildlife Service maintains the lists through republications and other administrative practices.

No entry to these lists has been added, deleted, or significantly altered by this republication. Such actions must be published as separate documents in the Federal Register.

Minor changes are made in §§ 17.11(d) and 17.12(d) to clarify that some of the data in these lists are provided for the information of the reader and may now be changed without public notice when the annual (October 1) compilation of Title 50 is being done. This procedure will annually save the government several thousand dollars in publication costs in the daily Federal Register by permitting such changes of a nonregulatory nature.

The Service finds for good cause that this document shall be effective upon publication and that notice and public comment are unnecessary. This action is merely a republication of existing, and previously published, requirements. By bringing earlier lists up to date, it will provide more timely guidance to the public. Readers are requested to advise the Service of any errors or omissions, particularly with regard to historic ranges and alternative names in these lists.

Authors

List of Subjects in 50 CFR Part 17

Endangered and threatened species.

Dated: July 21, 1983.

J. Craig Potter,

Acting Assistan: Secretary for Fish and Wildlife and Parks.

Regulations Promulgation

PART 17—[AMENDED]

Accordingly, the Service amends Part 17 of Title 50 of the Code of Federal Regulations as follows:

1. The authority citation for Part 17 reads as follows:

Authority: Pub. L. 93-205. 87 Stat. 884. Pub. L. 95-632. 92 Stat. 3751; Pub. L. 98-159, 93 Stat. 1241; and Pub. L. 97-304. 96 Stat. 1411 (16 U.S.C. 1531, er seq.).

2. Revise Subpart B of 50 CFR Part 17 to read as follows:

Subpart B-Lists

§ 17.11 Endangered and threatened wildlife

- (a) The list in this section contains the names of all species of wildlife which have been determined by the Services to be Endangered or Threatened. It also contains the names of species of wildlife treated as Endangered or Threatened because they are sufficiently similar in appearance to Endangered or Threatened species (see § 17.50 et seq.).
- (b) The columns entitled "Common Name," "Scientific Name," and "Vertebrate Population Where Endangered or Threatened" define the species of wildlife within the meaning of the Act. Thus, differently classified geographic populations of the same vertebrate subspecies or species shall be identified by their differing geographic boundaries, even though the other two columns are identical. The term "Entire" means that all populations throughout the present range of a vertebrate species are listed. Although common names are included, they cannot be relied upon for identification of any specimen, since they may vary greatly in local usage. The Services shall use the most recently accepted scientific name. In cases in which confusion might arise, a synonym(s) will be provided in parentheses. The Services shall rely to the extent practicable on the International Code of Zoological *Nomencia*...те.
- (c) In the "Status" column the following symbols are used: "E" for Endangered, "T" for Threatened, and "E [or T] (S/A)" for similarity of appearance species.
- (d) The other data in the list are nonregulatory in nature and are provided for the information of the reader. In the annual revision and compilation of this Title, the following information may be amended without public natice: the spelling of species' names, historical range, foothotes, references to certain other applicable pertions of this Title, synonyms, and more current names. In any of these revised entries, neither the species, as defined in paragraph (b) of this section, _-. nor its status may be changed without following the procedures of Part 424 of Level this Title.
- (e) The "Historic Range" indicates the known general distribution of the

species or subspecies as reported in the restriction of the interesting of the present outloom may be greatly reduced on this historic range. This column does not imply any limitation or, the application of the prohibitions in the Act or implementing rules. Such prohibitions apply to all individuals of the species, wherever found.

(f)(1) A footnote to the Federal Register publication(s) listing or reclassifying a species is indicated under the column "When Listed." Footnote numbers to §§ 17.11 and 17.12 are in the same numerical sequence, since plants and animals may be listed in the same Federal Register document. That document, at least since 1873, includes a statement indicating the basis

for the listing, as well as the effective date(s) of said listing.

(2) The "Special Rules" and "Critical Habitat" columns provide a cross reference to other sections in Parts 17, 222, 226, or 227. The term "NA" (not applicable) appearing in either of these two columns indicates that there are no special rules and/or Critical Habitat for that particular species. However, all other appropriate rules in Parts 17, 217-227, and 402 still apply to that species. In addition, there may be other rules in this Title that relate to such wildlife, e.g., port-of-entry requirements. It is not intended that the references in the "Special Rules" column list all the regulations of the two Services which might apply to the species or to the

regulations of other Federal agencies or State or local governments.

(g) The listing of a particular taxon includes all lower taxonomic units. For example, the genus Hylovates (gibbons) is listed as Endangered throughout its entire range (China, India, and SE Asia); consequently, all species, subspecies, and populations of that genus are considered listed as Engangered for the purposes of the Act. in 1978 (43 FR 6230-8233) the species Haliaeetus leucocephoius (bald eagle) was listed as Threatened in "USA [WA, OR, MN, WI, V/I, MI)" rather than its entire population; thus, all individuals of the bald eagle found in those five States are considered listed as Threatened for the purposes of the Act.

(h) The "List of Endangered and Threatened Wildlife" is provided below: KENNON SITE

Site No. TND 981473575

Reference No. 19

WATER QUALITY MANAGEMENT PLAN FOR THE LOWER CUMBERLAND RIVER BASIN

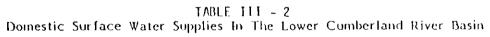
November, 1978

PRODUCED BY
TENNESSEE DEPARTMENT OF PUBLIC HEALTH
DIVISION OF WATER QUALITY CONTROL
309 CAPITOL TOWERS
NASHVILLE, TENNESSEE 37219

Authorization No. 0871; 150 copies printed. This document was printed at a cost of 3399.50, or 22.66 each, to fulfill a requirement of EPA Grant No. P004193010 to the State of Tennessee and Section 208 of the Federal Water Pollution Control Act Amendments of 1972.

Printed by Enviro-Printers, Franklin, Tennessee

Adams-Cedar Hill	Red River	34.1	36 ⁰ 05'20"	87 ⁰ 35'55"	0.0960
Greenbrier	Impounded Reservoir	<u></u>	-	-	0.2810
Springfield	Sulphur Fork Creek	-	36 ⁰ 31'36"	86 ⁰ 52'54"	-
White House Utility District	Cumberland River- Old Hickory Lake	216.5	36 ⁰ 17'50"	86 ⁰ 38'00"	2.0200
Murfreesboro	East Fork Stones River (Spring)	12.3	-	-	5.3050
Smyrna	Stones River (Percy Priest Reservoir)	-	35 ⁰ 59'55"	86 ⁰ 28'45"	1.7230
Carthage	Cumberland River	309.0	36 ⁰ 14'36"	85 ⁰ 56'45"	0.3710
Dover	Cumberland River	88.8	36 ⁰ 29'27"	37 ⁰ 50'22"	0.1360
Gallatin	Cumberland River	239.1	36 ⁰ 20'25"	86 ⁰ 26'25"	2.3900
Hendersonville Utility District	Drakes Creek Cumberland River	3.7 222.1	36 ⁰ 17'45"	86 ⁰ 37'50"	2.1510
Portland	Impounded Reservoir	-	-	-	0.4330
Westmoreland	Impoundment		36 ⁰ 36'23"	86 ⁰ 29'23"	0.1640
Hartsville	Cumberland River	278.6	36 ⁰ 22'25"	86 ⁰ 10'44"	0.2810
Franklin	Harpeth River	81.5	35 ⁰ 54'30"	86 ⁰ 51'30"	1.9630
Lebanon	Cumberland River	263.0	36 ⁰ 17'57"	86 ⁰ 15'47''	2.718
West Wilson Utility District	Cumberland River	225.6	36 ⁰ 16'32"	86 ⁰ 33'35"	0.8000



		<u>ln</u>	take Location		
			Coord	inates	Avera Dai
Municipality or Water Company	Water Source	River Mile	Latitude	Longitude	Use ()
Woodbury	East Fork Stones River	44.3	35 ⁰ 49'36"	86 ⁰ 0412811	0.3
Ashland City	Big Marrowbone Creek. Cumberland River	l.1 160.0	36 ⁰ 15'41"	87 ⁰ 03'33"	0.4
Pleasant View Utility District	Sycamore Creek	-	36 ⁰ 19'36"	87 ⁰ 03'30"	0.3
River Road Utility District	Brush Creek Cumberland River	1.1 160.7	36 ⁰ 16'14"	87 ⁰ 03'07"	0.0
South Cheatham Utility District	Harpeth River	36.1	36 ⁰ 06'38"	86 ⁰ 06481	0.
Cumberland Utility District	Cumberland River	207.6	36 ⁰ 12'30"	86 ⁰ 38'30"	
Harpeth Valley Utility District	Cumberland River- Cheatham Lake	172.5	36 ⁰ 08'10"	86 ⁰ 55'15"	2.7230
Madison Suburban Utility District	Cumberland River	200.3	36 ⁰ 14'22"	86 ⁰ 12'52"	7.1290
Nashville-Plant No. 1	Cumberland River	193.8	-	~	63.502
Nashville-Plant No. 2	Cumberland River	206.3	~	~	35.000
Old Hickory Utility District	Comberland River	218.8	36 ⁰ 15'40"	86 ⁰ 38'30"	0.5790
Dickson	Impounded Reservoir	-	36 ¹³ 04'48"	87 ⁰ 24144	0.6500
Turnbull Utility District	Turnbull Creek	11.1	36 ⁰ 03'30"	87 ⁰ 12'15"	1.2000
Erin	Cumberland River	108.3	36 ⁰ 25'25"	87 ⁰ 34'33"	0.4111
Clarksville	Cumberland River Big West Fork Creek	132.8	-	-	9.710

KENNON SITE

Site No. TND 981473575

Reference No. 20

STATE OF TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT

IN THE MATTER OF:)
GENESCO INC.) DIVISION OF SUPERFUNG
EMMETT N. KENNON)
AND)
ROSE S. KENNON) NO. 86-3013
RESPONDENTS	ý

COMMISSIONER'S ORDER

Comes now, James E. Word, Commissioner of the Tennessee Dapartment of Health and Environment, and states that:

PARTIES

I.

James E. Word is the duly appointed Commissioner of the Tennessee Department of Health and Environment (the "Department").

II.

Respondent, Genesco Inc., is a domestic corporation qualified to do business in Tennessee. Its agent for service of process is W. C. O'Connor whose mailing address is Genesco Park, Nashville, TN 37202.

III.

Respondents, Emmett N. Kennon, and wife, Rose S. Kennon are husband and wife and both are residents of the state of Tennessee. Their mailing address is 2934 Sidco Drive, Nashville, TN 37204.

JURISDICTION

IV.

Pursuant to T.C.A. Section 68-46-206, the Commissioner is authorized to issue an order to any liable party requiring such party to investigate, identify, contain, and clean-up, including monitoring and maintenance, inactive hazardous substance sites which pose or may pose a danger to public health, safety or the environment because of the release or threatened release of hazardous substances. Pursuant to T.C.A. Section 68-46-215 the Commissioner may issue an Order for correction to the appropriate person, who will then comply with the Order within the time limit specified in the Order.

Respondents are "persons" within the meaning of T.C.A. Section 68-46-104 and each is also a "liable party" within the meaning of T.C.A. Section 68-46-202.

FACTS

VI.

Respondent, Genesco Inc. (hereinafter "Genesco"), is a Tennessee corporation with its executive offices located at Genesco Park, Naulyville, TN. Genesco operates in two major industry segments which are footwear and men's apparel. It employs approximately 3,900 persons in Tennessee.

VII.

General Adhesives, formerly known as General Adhesives and Chemical Company, is a division of Genesco Inc. which operates a manufacturing plant at 6100 Centennial Boulevard in Nashville, TN. It manufactures and sells specialty industrial and consumer products which includes adhesives, sealants, and coatings utilizing solvent-based thermoplastic and water-based technologies. It is a hazardous waste generator utilizing the EPA installation identification number TND 001981240. It is a permitted hazardous waste transporter utilizing the EPA installation identification number TND 001367549.

VIII.

Emmett N. Kennon and Rose S. Kennon are owners of certain property described herein. They have owned the property since at least 1976. A portion of said property was used for a period of time in approximately 1978 for the disposal of certain hazardous substances. To the knowledge of the Department it has not been operated as a disposal site since that time and, therefore, said property is an inactive hazardous substance disposal site, (hereinafter, the "site").

IX.

The site is within a 146.8 acre tract located along Wilson Pike in Williamson County, Tennessee, and all of said tract is located within the city limits of Brentwood, Tennessee. The site is approximately two (2) acres.

The site was operated by Respondents, Kennons, as a disposal site for construction waste and for certain other waste described herein which were hazardous substances. At least one or more of the tranches used in the disposal operation were already in existence from the excavation for phosphete minute.

XI.

Genesco notified the Department on or about August 19, 1981 that it was a generator of hazardous waste. It reported that it generated hazardous waste which were described as being "waste, cement and solvents, N.O.S.". The waste was further described as being ignitable (as described in Division rule 1200-1-11-.02 promulgated under the <u>Hazardous Waste Management Act</u>). The waste was reported to be generated at an average rate of 7,400 kilograms per month. The major compounds of the waste were described as being acetone, hexane, toluene, methyl ethyl ketone, and 1, 1, 1 trichloroethylene.

XII.

On or about May 21, 1985 Genesco reported in a letter to the Department, that during the summer and/or fall of 1978, General Adhesives had disposed of approximately eight hundred (800) 55 gallon barrels of waste material in a rural area of Williamson County, Tennessee". The rural disposal area is now known to be the property of Respondents Emmett N. Kennon and Rose S. Kennon. To the knowledge and belief of the Department, the waste was transported to the site by Respondent Genesco and/or by Respondents Kennon.

XIII.

In the same letter referenced above, it was stated that approximately 50 to 80 barrels were buried and the remainder of the waste was poured from the barrels into earthern trenches at the site.

XIV.

It was further stated in the same letter, that the exact amount and contents of the waste material were unknown; however, Genesco believed that the waste contained water-based adhesives and may have contained acetone, ethyl acetone, hexane, methylene chloride, methyl ethyl ketone, rubber solvent, toluene, 1, 1, 1 - trickleroethane, trickleroethane, trickleroethane, and in acetone, fill acetone, toluene, 1, 1, 1 -

On or about August 9, 1985 Genesco submitted a plan of investigation of the site to the Department. The plan was revised according to bapartment comments and resubmitted on September 25, 1985. The plan was approved by the Department on or about October 2, 1985. Genesco then began to investigate the extent of any environmental impact including the sampling of waste, soil, and water in and around the site. Water samples included samples of leachete at the site, springs, a seep, and water wells in the vicinity.

XVI.

Laboratory analysis of certain samples reveal the presence of hazardous substances including, but not limited to: arsenic, lead, chromium, trans-1, 2-dichloroethene, 1,1,1 trichloroethane, 1, 1-dichloroethane, 1, 2-dichloroethane, toluene, bis (2-ethyl hexyl) phthalate, naphthalene, ethylbenzene and trichloroethane. The location of a spring and a seep and the laboratory analysis of the same indicate that the contaminants are migrating from the site. The exact analysis results and sampling locations are listed in Tables A, B, C and D of this Order.

TABLE A

Samples Collected January 28, 1986 by Department Stati
at an On-Site Seep Approximately 500 foot Southers?

of the Site

Hazardous	Level of		Type of	
Substance	Contamination		<u>Sample</u>	
Arsenic	.217	ppm		water
Arsenic	18.0	ppm		soil
Lead	.12	ppm		water
Lead	7.6	ppm		soil
Chromium	.15	ppm		water
Chromium	9.3	ppm		soil

TABLE B Samples Collected February 7, 1986 by Department Staff at an Off-Site Spring (Hackett Spring) Approximately 1200 Feet Southeast of the Site

	Hazardous	Level o	f	Type of
)	Substances	Contamina	tion	Sample
	Trans -1, 2-dichloroethene	.07	ppm	water
	1, 1, 1 trichloroethane	.013	ppm	water
	1, 1-dichloroethane	.026	ppm	water

TABLE C
Sample Collected January 22, 1986 by Department
Staff at Pit A from the Disposal Site

Hazardous	Level of		Type of
Substance	Contaminati	Contamination	
Arsenic	9	ppın	soil
Chromium	14	ppm	soil
Lead	2	ppm	soil
I, 1-dichloroethane	4.3	ppm	soil
1, 2-dichloroethane	1.2	mqq	soil
Trans -1, 2-dichloroethane	3.3	ppm	soil
Toluene	120	ppm	lios
1, 1, 1-trichloroethane	2.2	ppm	lios

TABLE D
Samples Collected January 22, 1986 by Department
Staff from PIT B from the Disposal Site

Hazardous	Level of		Type of
Substance	Contamination	<u>n</u>	Sample
Chromium	14	ppm	waste
Bis (2-ethyl hexyl) phthalate	940	ppm	waste
Naphthalene	110	ppm	waste
Chromium	14	ppm	soil
l, 2-dichlorethane	11.11	ppm	soil
Ethyl benzene	19.19	ppm	soil
Tetrachloroethene	220	ppm	soil
Toluene	6,200	ppm	soil
l, I, I-trichloroethane	160	ppm	soil
Trichloroethane	6.9	ppm	soil

Based on the laboratory analysis and the location of these samples, it is the opinion of the Department that hazardous substances have been disposed of at the site, migrated from the site, and that the substances have contaminated ground water. Immediate remedial measures are necessary and appropriate because of potential harm to the public health and environment.

CLAIMS FOR RELIEF

XVIII.

By owning and operating a hazardous substance disposal site and by being the generator of the hazardous substances who at the time of disposal caused such substance to be disposed at the site, each of the Respondents is a "liable party" as defined at T.C.A. Section 68-46-202 which is defined as:

- "(a) The owner or operator of an inactive hazardous substance site;
- (b) Any person who at the time of disposal was the owner or operator of an inactive hazardous substance site;
- (c) Any generator of hazardous substance who at the time of disposal caused such substance to be disposed of at an inactive hazardous substance site; or
- (d) Any transporter of hazardous substances which is disposed of at an inactive hazardous substance site who, at the time of disposal, selected the site of disposal of such substances."

This site is an inactive hazardous substance site within the meaning of T.C.A. Section 68-46-202 which is defined as "any site or area where hazardous substance disposal has occurred."

XIX.

PREMISES CONSIDERED, I, James E. Word, hereby ORDER the Respondents to comply with the following:

- 1. The Respondents must submit a plan to the Department within fifteen (15) days of the receipt of this Order describing how the Respondents will provide a permanent adequate, and patable water source for human consumption and household use to the recidents potentially impacted by the site. Until such tine as a permanent water supply is provided, the Respondents shall supply adequate drinking water to those persons in the vicinity of the site that they are presently supplying and others deemed appropriate by the Department.
- 2. The Respondents will define the potentially impacted area within the above referenced plan and said plan will include a proposed chronology of activities and a schedule for the completion of activities. The plan will describe how the Respondents will provide and install said water source including any agreements with public utility districts. The plan will further include a well water monitoring program for sampling and testing specified existing wells outside the perimeter of the "potentially impacted area."
- 3. The Respondents will submit a separate plan to the Department within thirty (30) days of the receipt of this Order which will describe how the Respondents will control the source of release of the contaminants to prevent migration of the same. Said plan will define the scope of the source and provide a proposal of activities for immediate remedial measures and a schedule for completion of said activities. The Respondent will implement the plan upon the approval and notice to procede of the Department.
- 4. The Department will review said plans and may require revisions as deemed necessary. Respondents shall implement all immediate remedial action plans as they are approved by the Department.

B. INITIAL ASSESSMENT

1. Within sixty (60) days of receipt of this Order, the Respondents shall submit to the Department any existing data available to the

Respondents which is pertinent to the assessment of the bazard that the specified site may pose to public health and the environment. This information shall include available data listed in peragraph NIX C2 of this Order and shall be submitted in duplicate.

2. Following receipt of this information, the Department will schedule an initial assessment conference which the Respondents shall attend in the Nashville Office of the Department, Division of Superfund. The Respondents shall be given seven (7) days notice prior to this meeting. The purpose of this conference will be to discuss existing data and determine the need for further investigation, remedial action and/or long term monitoring and maintenance. A schedule for future activities, deemed necessary by the Department, shall be established at this conference. Depending on existing data, the Department may determine that no further action is necessary. In all other cases, the schedule established in this conference will provide the dates by which the activities enumerated herein must be completed.

C. INVESTIGATION PROGRAM

- 1. According to the schedule established in the initial assessment conference, the Respondents shall submit to the Department a proposed Investigation Plan.
- In order to provide an accurate assessment of the hazard posed by the site to public health and the environment and to develop design data for remedial action, the Investigation Plan shall include, but not be limited to, assessment of the following factors:
 - Types and quantities of hazardous substances disposed at the site.
 - b. Physical state, analytical summary, toxicological characteristics and other pertinent data defining hazardous substances present at the site.

- c. Methods and extent of the disposal operation including containment methods used, plans and/or photographs of site operation, perimeter and dapth of disposal speed and took of disposal operation conducted (open burning, trench, surface impoundment, etc.).
- d. Observed release of contaminants to ground water, surface water or air, including sampling, to determine contaminant concentrations and extent of contaminant migration.
- e. Hydrogeologic factors to determine depth to groundwater, permeability of the unsaturated zone, distance to nearest surface water and slope of the disposal area and intervening terrain.
- f. Population and environment potentially affected:
 - (1.) Ground water use and population served by ground water sources within a three (3) mile radius of the perimeter of contaminant migration.
 - (2.) Surface water use and population served within a three (3) mile reach downstream of the perimeter of contaminant migration.
 - (3.) Population potentially affected by contaminant releases to the air within a four (4) mile radius of the perimeter of contaminant migration.
 - (4.) Distance from the site to sensitive environments such as a natural wetland, critical habitat for an endangered species or a National Wildlife Refuge.
- g. Fire and explosion hazard assessment of the site.
- h. Direct contact hazard assessment of the site.

3. The Investigation Plan must include cost estimates and a proposed schedule for completion of activities involved in the investigation. Following a review of the Plan, the Department may schedule a meeting which Respondents shall altend to discuse any revisions required by the Department. The Respondents will be given even (7) days notice prior to the meeting. On or before a deadline date established in this review meeting, a revised Investigation Plan shall be submitted by the Respondents to the Department. Upon approval by the Department of the revised Investigation Plan, the Respondents shall begin required activities according to the revised Investigation Plan.

D. REMEDIAL ACTION SELECTION AND IMPLEMENTATION

- 1. Following completion of the investigation activities, a report providing an assessment of the hazard posed by the site to public health and the environment and proposing remedial action alternatives shall be submitted by the Respondents to the Department according to the Investigation Plan schedule. One of the alternatives that shall be addressed in the report shall be the removal of the source of contamination. This report will be referred to as a Hazard Evaluation/Remedial Action report (herein after referred to as "HE/RA"). Remedial action alternatives must include cost estimates and proposed schedules for completion of activities involved in remedial action implementation.
- Assessment of each remedial action alternative must include consideration of the following factors:
 - a. The technological feasibility of each alternative;
 - b. The cost-effectiveness of each alternative;
 - c. The nature of the danger to the public health, safety, and the environment posed by the hazardous substances at the site; and

- d. The extent to which each alternative would achieve the goal of T.C.A. Section 68-46-206(d) which states, in part, "... The goal of any such action shall be cleanup and contained it of the site through the elimination of the threat to public health, so cty and the environment posed by the hazardors substance."
- 3. Following the Department's review of the HE/RA Report, the Department may schedule a meeting which the Respondents shall attend, to discuss any revisions required by the Department. The Respondents will be given seven (7) days notice prior to the meeting. On or before a deadline date established in this review meeting, a final HE/RA Report shall be submitted to the Department. Upon receipt of approval by the Department of the final HE/RA Report, the Respondents shall begin activities required by the final HE/RA Report, unless the Department determines no further action is necessary.
- 4. The HE/RA activities shall not be considered complete until the Department has reviewed these activities and issued a letter of acceptance to the Respondents.

E. SITE MONITORING AND MAINTENANCE

- Where the Department determines a need for site monitoring and maintenance, the Respondents shall provide a Site Monitoring and Maintenance Plan (herein after referred to as "M/M Plan") which shall include a proposed schedule for completion of required activities and cost estimates within ninety (90) days of receipt of a request for said Plan by the Department.
- Within forty-five (45) days of receipt of this M/M Plan by the Department, the Respondents shall attend a meeting with the Department to discuss any required revisions. On or before a deadline established in this review meeting, a revised M/M Plan shall be submitted by the Respondents to the Department. Upon receipt of approval by the Department, the revised M/M Plan will go into

F. To the extent practicable, any investigation, identification, containment and clean-up, including monitoring and maintenance, shall be consistent

with the national contingency plan promulgated मधुम्बाम्बास कि Section 105 of

Public Law 96-510.

G. Certain activities may be deemed critical by the Department and shall

require observation by the Department. The Respondence shall provide

sufficient notice to the Department to allow scheduling of personnel for

these activities. The Department also reserves the right to observe any

other activities required pursuant to this Order.

H. Any failure to comply with approved schedules of activitie, required

under this Order shall be a failure to comply with this Order.

I. In this Order, any reference to the singular includes the plural.

J. Further, I, James E. Word, do not waive any rights or authority available

to me to assess the Respondents for liability for costs, expenditures, civil

penalties or damages incurred by the State pursuant to this Order. I also

reserve the right to order such further remedial action to be completed by

the Respondents where it is determined that further remedial action is

needed.

_}}

Issued in this office of the Commissioner of the Tennessee Department of

Health and Environment this ______ 5 20 ____ day of March, 1986.

JAMES E. WORD, Commissioner Tennessee Department of Health

and Environment

NOTICE OF RIGHTS

Respondents are hereby advised that in accordance with T.C.A. Section 68-46-215 they may secure a review of the necessity for or reasonableness of this Order by filing with the Commissioner, a written petition setting forth the grounds and reasons for objection and asking for a hearing in the matter involved before the Solid Waste Disposal Control Board. The Order shall become final and not subject to review unless the person or persons named herein shall file such petition for a

hearing no later than thirty (30) days after the date such Order is secured. Hearings will be conducted in accordance with the Tennessee Uniform Administrative Procedures Act.

Correspondence regarding this Order should be add assed to Mary 3. Subsection, TERRA Bldg. 6th Floor, Assistant General Counsel, 150 Ninch Avanue, North, Nashville, Tennessee 37203 or telephone (615)741-0657.

Mary 比しphoston

Assistant General Counsel

MEJ/djv SWM Order - Genesco

SITE SUMMARY KENNON SITE (GENSCO) TND 981473515

The Kennon. Site (Genesco) is located near the junction of Split Log Road and Wilson Pike east of Brentwood in Williamson County, Tennessee.

The site is on the Kennon farm in an area of old phosphate pits where in 1978 General Adhesives, a subsidiary of Genesco, dumped approximately 800 drums of organic solvents, organic fillers, and adhesives. The pits were then filled. The state was informed of this unregistered landfill by Genesco in 1985.

Several private wells are still in use within three miles of the site and ground water contamination was discovered in early 1986. Residents with wells within a one mile radius (a population of approximately 118) were provided with bottled water at their discretion by Genesco until water lines could be run from Brentwood. Brentwood water is supplied by Metro Nashville.

TAM/ib





RCRA SUMMARY
KENNON SITE (GENESCO)
TND 981473515

The Kennon Site (Genesco) is a farm with phosphate pits that was used to dump approximately 800 drums of organic solvents, fillers, and adhesives in 1978.

The site was never registered as a landfill and did not have a TSD permit.

TAM/ib

Facility name: KENNOIJ SITE (GENESCO) TND 981473515
Location: Brentwood, Williamson County Tennessee
EPA Region:
Person(s) in charge of the facility:
Name of Reviewer: Thomas A. Muss Date: 3/5/87
General description of the facility: (For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the
facility; contamination route of major concern; types of information needed for rating; agency action, etc.)
The Kennon Site (Genesco) is a drum disposal site
used by General Adhesives, a subsidiary of Genesco, in
1978 to dispose of approximately 800 drums of
organic solvents, fillers, water based adhesives by dumping
them in phosphate pits and covering the pits at the effe.
The aguifer of concern is a carbonate, fracture-based solutionally
enlarged agrifer. A population of over 100 persons were on private wells within 3 miles of the site prior to the remedial scores: SM = 25 (Sgw = 43.2 Ssw = 5.3 Sa = N.R.) setion of water lines being run.
scores: SM = 25 (Sow = 43.2 Sow = 5.3 Sa = N.R.)
SFE = NOT RATED
SDC = NOT RATED

FIGURE 1 HRS COVER SHEET

	. •	Ground Water Route Work She	et			
Rating Factor		Assigned Value (Circle One)	Multi-	Score	Max. Score	Ref. (Section
Observed Release		7 (1.14 0 (3.15) 45	1	45	45 '	3.1
		en a score of 45, proceed to line 4 en a score of 0, proceed to line 2.				
2 Abute Characteris	lics			· · · · · · · · · · · · · · · · · · ·		3.2
Depth to Aquiles Concern	of	0 1 2 3	2		6	
Net Precipitation		D 1 2 3	1		3	
Permeability of 1	ne e	0 1 2 3	1		3	
Unsaturated Zo	18				_	
Physical State		0 1 2 3	1		3	
	_	Total Route Characteristics Score		{	15	
3 Containment		0 1 2 3	1		3	3.3
Waste Characterist Toxicity/Persiste Hazardous Waste Cuantity	nce	0 3 6 9 12 75 18 0 1 2 3 4 5 6 7 8	1	15/8 4	18 8	3.4
Ī		Total Waste Characteristics Score		1722	26	
Tarpets Ground Water Us Distance to Neart Well/Population Served		0 1 2 3 0 4 6 8 10 12 16 18 20 24 30 32 25 40	3 1	9 20	9 40	3.5
If line To is 45, m	unibiy Inply	Total Tempets Score 진 x 교 x 집 집 x 집 x 집 x 집	i	29	49	
- Divide line (6) by		<u></u>	Spw- 9	<u>·</u>		

FIGURE 2 GROUND WATER ROUTE WORK SHEET

			Surta	ce W	ater	Route	Work :	Sheet				
	Rating Factor		Assigned Value (Circle One)					Multi- plier	Score	Max. Score	Ref. (Section)	
0	Observed Release		C)		45	5		1	0	45	4.1
	If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.											
2	Route Characterist Facility Slope an Terrain		ning O	1	2 3				1	1	3	4.2
	1-yr. 24-hr. Rainfi Distance to Near Water		0 100 0		② 3 ② 3				1 2	2 4	3 6	
	Physical State	<u></u>	0	1	2 (3)			1	3	3	· · · · · · · · · · · · · · · · · · ·
			Total Po	ute C	harac	cteris	tics Sco	ге		10	15	
3	Containment		0	1	2 (3)			1	3	3	4.3
4	Waste Characterist Toxicity/Persiste Hazardous Waste Quantity	nce				12 (1		8	1	18/18 4	18 8	4.4
			Total Was	ste C	herac	terist	ics Sco	re		1/22	26	
5	Targets Surface Water Us Distance to a Sen Environment Population Served to Water Intake Downstream	sltive	© © 0 12 12 24	1 1 4 16 30	(2) 2 6 18 32	3 3 8 20 35	10 40		3 2	600	9 6 40	4.5
			То	tal T	arpets	s Sco	re			6	55	
	6 If line 1 is 45, multiply 1 x 2 x 5 If line 1 is 0, multiply 2 x 3 x 2 x 5 64,350											
7	Divise line 📵 by	64,350 a:	nd multip	ју ру	100			s	sw =	5.X	6. 1	3

FIGURE 7
SURFACE WATER ROUTE WORK SHEFT

Air Route Work Sheet ≒ef. Assigned Value Multi-Max. Score Rating Factor Score (Section) plier (Circle One) Observed Release 0 45 1 45 5.1 Date and Location: Sampling Protocol: is 0, the $S_a = 0$. Enter on line 5. is 45, then proceed to line 2. If line 1 2 Waste Characteristics 5.2 Reactivity and 0 1 2 3 Incompatibility 9 Toxicity 2 0 1 2 3 4 5 6 Hazardous Waste Quantity 20 Total Waste Characteristics Score 3 Targets 5.3 Population Within-0 9 12 15 18 30 4-Mile Radius ∫ 21 24 27 30 Distance to Sensitive 0 1 2 3 6 Environment Land Use 0 1 2 3 3 Total Targets Score 39

	FIG	URE 9	
AIR	ROUTE	WORK	SHEET

Multiply $1 \times 2 \times 3$

5 Divide line 4 by 35,100 and multiply by 100

. .

Sa=

35,100

	S	s ²
Groundwater Route Score (Sgw)	43.250.08	1866.24 2508.01
Surface Water Route Score (S _{sw})	53 6.15	28.09 37.82
Air Route Score (Sa)	NOT RATED	NOT RATED
$S_{gw}^2 + S_{sw}^2 + S_a^2$		1894.33
$\sqrt{s_{gw}^2 + s_{sw}^2 + s_a^2}$		43.5
$\sqrt{s_{gw}^2 + s_{sw}^2 + s_a^2} / 1.73 = s_M =$		25.2 29.19

FIGURE 10 WORKSHEET FOR COMPUTING S_M

NIOT	RA	ナモ	Ľ

	NOT RATED		
	Fire and Explosion Work Sheet		<u> </u>
Rating Factor	Assigned Value (Circle One)	Multi- plier	Score Score (Section
1 Containment	1 3	1	3 7.1
2 Waste Characteristics			7.2
Direct Evidence	0 3	1	3
Ignitability	0 1 2 3	1	3
Reactivity	0 1 2 3	1	3
Incompatibility	0 1 2 3	1	3
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	8
	Total Waste Characteristics Score		20
	TOTAL WASTE CHARACTERISTICS SCOTE		20
3 Targets	_		7.3
Distance to Nearest	0 1 2 3 4 5	1	5
Population	0 1 2 0 4 0	•	-
Distance to Nearest	0 1 2 3	1	3
Building			
Distance to Sensitive	0 1 2 3	1	3
Environment			
Land Use	0 1 2 3	1	3
Population Within	0 1 2 3 4 5	1	5
2-Mile Radius	0 1 2 3 4 5	1	5
Bulldings Within 2-Mile Radius	0 1 2 3 4 5	,	J
	Total Targets Score		24
4 Multiply 1 x 2 x	<u></u>		1,440
5 Divide line 4 by 1,4	40 and multiply by 100	SFE =	

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

NOT RATED

	NOT KATED			
	Direct Contact Work She	eet		ā A
Rating Factor	Assigned Value (Circle One)	Muith Scor	Max. Score	Ref. (Section
1 Observed Incident	0 45	1	45	8.1
· · ·	eed to line [4]			
2 Accessibility	0 1 2 3	1	3	8.2
3 Containment	0 15	1	15	8.3
Waste Characteristics Toxicity	0 1 2 3	5	15	8.4
Targets Population Within a 1-Mile Radius Distance to a Critical Habitat	0 1 2 3 4 5	4	20 12	8.5
· .	Total Targets Score		32	
	ply 1 x 4 x 5 y 2 x 3 x 4 x 5		21,600	
Divide line 6 by 21,6	00 and multiply by 100	SDC -		

FIGURE 12 DIRECT CONTACT WORK SHEET

DOCUMENTATION RECORDS FOR HAZARD RANKING SYSTEM

FACILITY NAME: KENNON SITE (GENESCO)

TND 981473515

FACILITY DESCRIPTION: COVERED PITS WITH DRUMS AND DUMPED LIQUIDS IN FIELD

LOCATION: BRENTWOOD, TENNESSEE

DATE SCORED: March 5, 1987

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PERSON SCORING: THOMAS A. MOSS

PRIMARY SOURCE(S) OF INFORMATION (e.g., EPA region, state, FIT, etc.): State Superfund Files

FACTORS NOT SCORED DUE TO INSUFFICIENT INFORMATION: Air , Fire and Explosion, Direct Contact

COMMENTS OR QUALIFICATIONS:

Water lines have been run to houses that were on private wells in the grea.

GROUND WATER ROUTE

OBSERVED RELEASE

Contaminants detected (5 maximum):

Trans -1,2-dichloroethene; toluene; 1,1 dichloroethane and 1,1,1 trichloroethane detected in Hackett Spring and on site monitoring wells by State Superfund sampling (Ref. 1) and are known to be toxic (Ref. 2,3).

Rationale for attributing the contaminants to the facility:

Genesco has admitted dumping, drums which they say probably contained organic solvents (including 1,1,1 trichloroethane and toluene), rubber solvent, water based adhesives, and organic fillers (Ref. 4). 1,1,1 trichloroethane, toluene, trans-1,2dichloroethane detected in on site monitoring wells (Ref. 1-Genesco Wells 8 and 9).

ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifer(s) of concern:

this John with The aquifer of concern would be the Bigby Cannon Limestone (70-130 ft. thick) as well as the underlying Hermitage Formation (50-100 ft. thick), with no confining layer present. Sinkholes and vertical fractures are present, this carbonate aquifer would be a fracture based, solutionally enlarged system. The Bigby-Cannon contains facies ranging from a microcrystalline limestone facies to medium and coarse grained limestone facies. The Hermitage Formation consists of thin bedded shaley limestone and sandy limestone. Underlying the Hermitage is more of the thick sequence of Middle and Lower Ordovician carbonates including the Carters Limestone, a dominantly cryptocrystalline limestone ranging to course grained, sometimes dolomitic. The Carters is approx. 70 ft. thick. The underlying Lebanon Limestone has similar lithology and is 30+ ft. thick (Ref. 5,6). The majority of the private wells have depths of 150-350 ft. (Ref. 7) and would be completed in the Hermitage Formation or Carters Limestone (Ref. 5,6).

Depth(s) from the ground surface to the highest seasonal level of the saturated zone (water table(s)) of the aquifer of concern:

Water depth in U.S.G.S. wells averaged 30 feet below land surface, average altitude 772 ft. with site at approx. 780 ft. (Ref. 7).

Depth from the ground surface to the lowest point of waste disposal/storage:

The phosphate pits and trenches in which the material were dumped are of unknown depth (Ref. 4). Assume default value of 6 ft.

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

48 inches (Ref. 8).

Mean annual lake or seasonal evaporation (list months for seasonal):

38 inches (Ref. 8).

Net precipitation (subtract the above figures):

10 inches

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

Soil in area is a salt loam but it generally 12/2 to Sft thick (REFT). Waste dumped in phosphate pits (REF.T) probably at or near bedrock. The Bigby-Cannon Limestone has sinkhole development (REF.5,0) and would be considered a Karst limestone.

Permeability associated with soil type: 7 10 3 cm/sec for Karst limestone (REF8).

) with the soil layer obsent or nearly so

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

Liquids dumped in pitsiat site by admission of company (REF.4).

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Landfill with no liner - drums and liquid dumped in unlined pits and trenches (REF.4).

Method with highest score: Landfill with no liner present-

WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

I) dichloroethene and I, I dichloroethane detected in pits A and B and monitoring well # 8 on site by State Superfund Sampling (REF. 1).

Compound with highest score: 1,1 dichloroethene has a toxicity rating of 3 (REF.3) and a persistence rating of Z (REF.8).

Hazardous Waste Quantity

KENDON STIE (SENERCO)

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

800 drums

Basis of estimating and/or computing waste quantity:

Genesco admission of Adamping approximately 800 S5-gallon burrels of waste material containing organic solvents, organic fillers, and water-based adhesives at the site by their subsidiary General Adhesives (REF.4).

5 TARGETS

Ground Water Use

Use(s) and aquifer(s) of concern within a 3-mile radius of the facility:

Drinking water with no municipal water presently available (REF. 10,11).

Distance to Nearest Well

Location of nearest well drawing from <u>aquifer of concern</u> or occupied building not served by a public water supply:

Hackett Spring is used as a drinking water supply by the Hackett St. Hackett house is on east side of wilson Piker approx. 1000 ft north of Split Log Road (REF. 1-sample points, REF. 13, 14).

Distance to show well as tablet.

Distance to above well or building: Hackett Spring is contaminated (REF.1), distance will be considered to be zero. Actual distance from pits is approx. 1500 ft (REF. 13,14),

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

31 houses identified not on municipal water/which required water lines run and service connections (REF. Hsample points map, REF. 1011). Using 3.8 people/house, this would give a population of 118, within a one mile radius and additional population of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

None identified (REF. 15)

Total population served by ground water within a 3-mile radius:

118+

COU

1 Min

4

FERMON SITE (SENECCE)

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

None identified

Rationale for attributing the contaminants to the facility:

NIA

.

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent: 60 ft in 1800 ft for 3.3% slope (REF.13,14).

Name/description of nearest downslope surface water:
Unnamed creek extering the Little Hurpeth River north of the junction of Wilson Fike and Split Log Road (REF. 13,14).

Average slope of terrain between facility and above-cited surface water body in percent: 80 ft in 1800 ft for 4% slope (REF.13,14).

Is the facility located either totally or partially in surface water? No (REF.13,14).

Is the facility completely surrounded by areas of higher elevation? N_b (REF. 13,14).

1-Year 24-Hour Rainfall in Inches

3 inches (REF.8).

Distance to Nearest Downslope Surface Water

O.4 miles from site to where surface drainage enters unnamed tributary of Little Harpeth River (REF.13,14).

Physical State of Waste

Liquid: dumped in pits at site by admission of company (REF.4).

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Landfill not adequately covered and no diversion system present—

drums and liquid emptied into pits and covered with no documentation indicating adequate cap (REF.4).

Method with highest score: Landfill not covered, no diversion system present

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

1,1 dichloroethene and 1,1 dichloroethane detected in pits A and B and monitoring well #8 on site by State Superfund Sampling (REF.1).

Compound with highest score:

1,1 dichloroethene has a toxicity rating of 3 (REF. 3) and a persistence rating of Z (REF.8).

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

800 drums

Basis of estimating and/or computing waste quantity:

Genesco admission of the dumping of approximately 800 55-gallon barrels of waste material containing organic solvents, organic fillers and water-based adhesives at the site by their subsidiary 6 General Adhesives (REF.4).

5 TARGETS

18.30

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance: Recreational use of the Little Harpeth River between Split Log Road and Concord Road (REF. 15).

Is there tidal influence?
No (REF.13/14).

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less: None identified (REF.13,14).

Distance to 5-acre (minimum) fresh-water wetland, if I mile or less: None identified (REF.13,14).

Distance to critical habitat of an endangered species or national wildlife refuge, if I mile or less:

None identified (REF. 15). 16

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

None identified (REF. 17)

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

None identified (REF. 15).

Total population served:

N/A

KENNON SITE (SLIVESCO) TND 481473515

Name/description of nearest of above water bodies:

N/A

Distance to above-cited intakes, measured in stream miles:

N/A

NOT RATED

AIR ROUTE

1 OBSERVED RELEASE
Contaminants detected:
Date and Location of detection of contaminants:
Date and Docation of detection of contaminants.
Methods used to detect the contaminants:
Rationale for attributing the contaminants to the site:
* * *
2 WASTE CHARACTERISTICS
Reactivity and Incompatibility
Most reactive compound:
in the reactive dempounds
Most incompatible pair of compounds:

Toxicity

200

Most toxic compound:

Hazardous Waste Q	uant	ity
-------------------	------	-----

Total quantity of hazardous waste:

Basis of estimating and/or computing waste quantity:

* * *

3 TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi

0 to 1 mi

0 to 1/2 mi

0 to 1/4 mi

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

Distance to critical habitat of an endangered species, if I mile or less:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

KENNON STIE (SEKESCO)

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

NOT RATED

FIRE AND EXPLOSION

CONTAINMENT

Hazardous substances present:

Type of containment, if applicable:

2 WASTE CHARACTERISTICS

Direct Evidence

Type of instrument and measurements:

Ignitability

Compound used:

Reactivity

Most reactive compound:

Incompatibility

Most incompatible pair of compounds:

NEWMON 21 (E. C.C.) 1300 (1800)

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility:

Basis of estimating and/or computing waste quantity:

3 TARGETS

Distance to Nearest Population

Distance to Nearest Building

Distance to Sensitive Environment

Distance to wetlands:

Distance to critical habitat:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

KENNOW SUE (GENESC)

Distance to residential area, if 2 miles or less:

CAS

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

Population Within 2-Mile Radius

Buildings Within 2-Mile Radius

NOT RATED

DIRECT CONTACT

1 OBSERVED INCIDENT

2.0

Date, location, and pertinent details of incident:

2 ACCESSIBILITY

Describe type of barrier(s):

* *

3 CONTAINMENT

Type of containment, if applicable:

* * *

4 WASTE CHARACTERISTICS

Toxicity

Compounds evaluated:

Compound with highest score:

7)

5 TARGETS

Population within one-mile radius

Distance to critical habitat (of endangered species)

Disc--Higgs/GrndW2

1. State Superfund Sampling Results for Kennon Site (Genesco) with Sample Points Map for Wells/ Springs

1. A cology as someter sample would from Kenner ste (speriolist systes) Dictionary Tenth Edition; Van Nostrand Reinhold G. Hawley, revised (1981): Condensed Chemical Campany.

3. N.I. Sax (1984): Dangerous Properties of Industrial Materials, 6th Edition; Van Nostrand Reinhold Company.

Letter from Ralph Mosely, Genesco to Tom Tiesler, DSWM, Re: Chemical Waste Site Once Used by a Division of Genesco,,

Ma D 5. (1963) Franklin Quadrangle Geologic GM 63-NE & CART Beaust Finething (1977): Bedrock Geology of the Nashville and Middle Tennessee Area.

7. 2/19/87 Letter from Pozer W. Ree U.S. Geofogial Swivery to Josh Hughes, In. Bept. Halth and Environment (Superfund) - Date on Observation Welle. Donnestie weed tota, Going Etys miller Plan for Investigation

8 the Kennow Site, Dec. 1928

8. Mncontrolled Hazardous Waste Site Ranking System, A Users Manual (HW-10); U.S. E.P.A.

9. (1964) Soil Survey of Williamson County,
Tennessee; Series 1961, no. 5; U.S. Dept. of Agricult
Soil Conservation Service.

10. 2/19/86 Letter from Frank W. Clifton, Jr.
Brentwood City Manager to Don Oppost Shack!
In. Div. Superfund; Re: Cost Estimates for Water

11. 7/28/86 Letter from Ralph Mosely, Genesco to Frank W. Clifton, Jr.; Brentwood City Mana Re: Service Connections.

12, 3/6/87 Conversation of Thomas A. Moss DSF with Ronnie L. Bowers, DSF; Re: Book Kennon Site (Genesco) Sample Results, Water

13. (1981) Franklin quadrangle Topographic Map

63 NE

M sidquipeget slennhaup sllivenslen (12P1) 41

- 15. 3/10/87 Telephone Conversation of Thomas A. Moss, DSF with Robin Bowie, Williamson County Soil Conservation Service; Re: Surface and Gronndwater Use for Irrigation in the Area of the Genesco Site.
- 16. 12/19/85 Letter from Robert M. Hatcher, TWRA to Gordon S. Caruthers, DSWM with attachments: Critical Wildlife Habitat of Tennessee, U.S. Fish and Wildlife Service.
- 17. (1978) Water Quality Management Plan for the Lower Cumberland River Basin, Tn. Division of Water Quality Control.
- 18. Commissioners Order (Genesco Inc./Emmett & Rose Kennon. Cada na 66 30 13

		74
7	ᅡ	A

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

'	i. IDENT	IFICATION
,		02 SITE NUMBER
İ	TN	1981473515

VLIA	PART 1 - SI	ITE LOCATION AN	ID INSP	ECTION INFO	RMATION	7N	981473515
II. SITE NAME AND LOCA	TION						
01 SITE NAME (Legal, common, or d	escriptive name of life)		02 STR	EET, ROUTE NO., O	R SPECIFIC LOCATION I	DENTIFIER .	TRAN 1655 From AN PIKE. South OF THE
	1.1. 1. 1. 1. 1. 1. 1.	···	0-7 WI	LOU FIRE LA	100 COUNTY	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	lossoured on cour
03 CITY			1 _	TE 05 ZIP CODE	06 COUNTY		07COUNTY 08 CONG CODE DIST
OP COORDINATES	3 <u>L</u>	10 TYPE OF OWNERS	TN		MILLIAM	SON	
LATITUDE	LONGITUDE		E 🗆 B. F		C. STATE C	D. COUNTY G. UNKNOV	
III. INSPECTION INFORMA	ATION 02 SITE STATUS	03 YEARS OF OPER	ATION				
l	□ ACTIVE	OU TEXTION DI ELL	197	8 1 19	78	JNKNOWN	
MONTH DAY YEAR	X INACTIVE	BE	GINNING Y				
D4 AGENCY PERFORMING INSPE	INTRACTOR		пол	MUNICIPAL DI). MUNICIPAL CONTE	RACTOR	
Ø E. STATE D F. STATE		(Name of firm)	_ EXG.(OTHER GEON	067 ASSOC	-1A7ES	S (FOR GENESCO)
05 CHIEF INSPECTOR		(Name of firm)			(Specify) 07 ORGANIZA		08 TELEPHONE NO.
	12 0		res lia.	(Mar 4 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			1615) 7416288
RONNIE)	SOULKS	10 TITLE	0000	ENTITE SY	EC SUPER	TION	12 TELEPHONE NO.
l <u>-</u>	U6HES	GEON	9 <u>675</u>	7	SUPEKI	FUNU	(615) 741 6222
WAYNE MC	Co y	PROJEC	T MA	ANAGEK	EDGE		(615) 383 3588
MARK LCYY	,				5E01.07y 1	4 Skor - 73	()
/					7-7-7		()
							()
13 SITE REPRESENTATIVES INTE	RVIEWED	14 TITLE		15ADDRESS	INC, GENESO	1 000	16 TELEPHONE NO
RULPH MOS	657	DIRECTO			TN, 3720		(615)3678417
EMMETT A		SITE OU	W CK	2934 51	DEO DRIV	E, NASH	+ ()
,							()
				- "			()
							()
							()
17 ACCESS GAINED BY (Cleck one) PERMISSION WARRANT	8 TIME OF INSPECTION	19 WEATHER CON	DITIONS				
IV. INFORMATION AVAILA	ABLE FROM						
01 CONTACT		02 OF (Agency/Organ	nization)				03 TELEPHONE NO.
CHARLES POU	NERS	TOHE	- 50	IFEK FUN	<i>D</i>		14519416286
,	ONE STEEL INSPECTION FORM			GANIZATION		-	OB DATE S E MONTH DAY YEAR
EPA FORM 2070-13 (7-81)			~	~			

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POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 2 - WASTE INFORMATION

I. IDENTIFICATION			
01 STATE	02 SITE NUMBER		
TN	981473515		

WASTE CHARACT MA TOXIC (1) B. CORRO (1) C. RADIOA MO PERSIS UNIT OF MEASURE	ACTIVE [] G. FLAMN STENT [] H. IGNITA	BLE L) I HIGHLY HOUS D J. EXPLORABLE D K BEACT	SIVE IVE PATIBLE
DA A TOXIC (1) B. CORRO L'I C. BADIOA X) D. PERSIS JNIT OF MEASURE	U E SOLUB DSIVE U F. INFECT ACTIVE U G. FLAMN STENT U H. IGNITA	BLE LET HIGHLY PROUS DE J. EXPLO- MABLE TEN REACT BLE DE MONTA	OF MEASURE OF CONCENTRATION
		O5 CONCENTRATION	217 PPM 8 PM
		05 CONCENTRATION	217 PPM 8 PM
		05 CONCENTRATION	217 PPM 8 PM
04 STORAGE/DISI	POSAL METHOD	D5 CONCENTRATION	217 PPM 8 PM
04 STORAGE/DISI	POSAL METHOD	U5 CONCENTRATION	217 PP1 8 PM
04 STORAGE/DISI	POSAL METHOD	05 CONCENTRATION	217 PPM 8 PM
04 STORAGE/DISI	POSAL METHOD	05 CONCENTRATION	217 PPM 8 PM
04 STORAGE/DISI	POSAL METHOD	05 CONCENTRATION	217 PPM 8 PM
04 STORAGE/DISI	POSAL METHOD	05 CONCENTRATION	217 PPM 8 PM
04 STORAGE/DISI	POSAL METHOD	05 CONCENTRATION	217 PPM 8 PM
04 STORAGE/DISI	SPOSAL METHOD	05 CONCENTRATION	217 PPM 8 PM
04 STORAGE/DISI	POSAL METHOD	D5 CONCENTRATION	217 PPM 8 PM
04 STORAGE/DISI	POSAL METHOD	05 CONCENTRATION	217 PPM 8 PM
			217 PPN 8 PM 14 PPA
			14 PPA
			14 8801
			1
			40 = 200
			4950PPM
			280 PPM
			59 Pr
			29,434 810
			940 PPM
			110 ffm
			* 1 000
			44 88
			4980 PM
			1
			9285 1:0
			14911 880
		<u> </u>	
	O1 FEEDSTO	CK NAME	02 CAS NUMBER
rus			
EDS		l	
	CATEGORY FDS FDS FDS FDS FDS	FDS FDS FDS	FDS FDS FDS

3 2

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POTENTIAL HAZARDOUS WASTE SITE, SITE INSPECTION REPORT PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

	TIFICATION
01 STATE	02 SITE NUMBER
TN	981473515

1. HAZARDOUS CONDITIONS AND INCIDENTS			_
	02 C OBSERVED (DATE: 1 28/86)	D POTENTIAL	☑ ALLEGED
01 A GROUNDWATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED:	04 NARRATIVE DESCRIPTION	^	
filers, rubber solvents and water	1 + - I was in our and the	y angaine so	Color Color
Swantening wells was tott	I del interior	le il to se	luce
(Ref # 1,2,34)	if a die of	ary at su	
01 C B. SURFACE WATER CONTAMINATION	02 C OBSERVED (DATE:)	▼ POTENTIAL	C ALLEGED
OR BODIE ATION BOTCHTIALLY AFFECTED	DA MADDATUE DECODISTION	• •	
The Kennon site drain in a son	therest of defection town of the	Little Harf	Ti. 1 17
Surface distributed an new land	and thereties to the fittle	tack the 4 s	ince from
The Kennon site deale in a son Surface discrete enters an agre the site Hackett Spring flor downgradicit to the sets	R113 14	· y · · · · y · · · · · · · · · · · · ·	C) and a set
01 [] C. CONTAMINATION OF AIR 03 POPULATION POTENTIALLY AFFECTED:	02 2 OBSERVED (DATE:	☐ POTENTIAL	C ALLEGED
01 D. FIRE/EXPLOSIVE CONDITIONS	02 OBSERVED (DATE:)	☐ POTENTIAL	☐ ALLEGED
D3 POPULATION POTENTIALLY AFFECTED:	04 NARRATIVE DESCRIPTION		
	•	4	
		•	
D1 G E. DIRECT CONTACT	02 C OBSERVED (DATE:)	□ POTENTIAL	ALLEGED
03 POPULATION POTENTIALLY AFFECTED:	04 NARRATIVE DESCRIPTION		
		Ť	
	•		
01 X F. CONTAMINATION OF SOIL	02 DBSERVED (DATE: 1/28/86) 04 NARRATIVE DESCRIPTION	□ POTENTIAL	SKALLEGED
D3 AREA POTENTIALLY AFFECTED: 200 31	04 NARRATIVE DESCRIPTION		/
501 (Simples taken are so to a 146 acres tract w	by State Superior of the and	ancer 1 2 2/2	3,84,1986
Confirm soil contaminations	(Rec. #1) It was A.	ported that	onchy & son
a 146 acre tract w	en used as a disposalsite.		
	1/22/6/		
D1 G. DRINKING WATER CONTAMINATION O3 POPULATION POTENTIALLY AFFECTED: //2	02 (5) OBSERVED (DATE: 1/28/86) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	X ALLEGED
31 medidos els que identició	I as were sient of city u	rates ados	
3/ siesedo, els ace identifica	calculating 3,8 person por d	en well X3	1 hours or
professe 118 persons disclade	() at #) Sample points map,	REF 10,11)	
() - 110 km 2010 2/2 2 2 2			
01 T. H. WORKER EXPOSURE/INJURY 03 WORKERS POTENTIALLY AFFECTED:	02 TOBSERVED (DATE:)	☐ POTENTIAL	☐ ALLEGED
33 WORKERS FOIENIALLT AFFECTED:	04 NARRATIVE DESCRIPTION		
•			
01 □ I. POPULATION EXPOSURE/INJURY	02 □ OBSERVED (DATE:)	D POTENTIAL	□ ALLEGED
01 □ I. POPULATION EXPOSURE/INJURY 03 POPULATION POTENTIALLY AFFECTED:	02 © OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	D POTENTIAL	□ ALLEGED
		D POTENTIAL	□ ALLEGED
		© POTENTIAL	□ ALLEGED

EPA FORM 2070-13 (7-81)

I. IDENTIFICATION

\$EPA	SIT	AL HAZARDOUS WASTE SITE E INSPECTION REPORT OF HAZARDOUS CONDITIONS AND INCIDENT	01 STATE 02 SITE NUMBER TN 9814 73515
II. HAZARDOUS CONDI	TIONS AND INCIDENTS (Continue	ed)	
01 □ J. DAMAGE TO FLO 04 NARRATIVE DESCRIPT		02 🗆 OBSERVED (DATE:)	□ POTENTIAL □ ALLEGED
01 □ K. DAMAGE TO FA 04 NARRATIVE DESCRIPT	TION (include name(s) of species)	02 D OBSERVED (DATE:)	☐ POTENTIAL ☐ ALLEGED
01 D L CONTAMINATION 04 NARRATIVE DESCRIPT This part	NOFFOOD CHAIN TION tienlar fenced.	in tract of land encon pasture for cattle.	passing the disposal
01 D.M. UNSTABLE CON (Solls: Runoll/Standin 03 POPULATION POTENT appearation retires 50 to 80 barries Linto 6 delp:	TAINMENT OF WASTES of Mourds. Leaking Grunds. TALLY AFFECTED: OO Bassels & Cordo, were lurie of and a trencles and there	02 [) OBSERVED (DATE 1/22/86) 04 NARRATIVE DESCRIPTION mineted waster were disposed the remaining 120 to 750 barrens 120 to 750 barrens 120 to 150 to 100 t	Patale Kennon site. els were poured Linewin Ritson trenches
01 X N. DAMAGE TO OF	FSITE PROPERTY	02 OBSERVED (DATE: 1/28/86) Vale (W.C.C. and Springs ha whateness found on the Kenness	POTENTIAL ALLEGED
01 © 0. CONTAMINATION 04 NARRATIVE DESCRIPT		/WTPs 02 () OBSERVED (DATE)	POTENTIAL ALLEGED
01 XP ILLEGAL/UNAUT 04 NARRATIVE DESCRIPT Dimsion of S ymsley, Directo 800 dlunes of a	HORIZED DUMPING JORIZED DUMPING JORIZED DUMPING LOS Safety, Genesco 20 Sontomnative wastes on	oz: OBSERVED (DATE: 5/2/85) emis: received a letter dated ne, reporting that Genesas had n the Emmet Kennon site i	5/21/85 from Ralph dumped approximately in Bunhard In (Raf # 1)
05 DESCRIPTION OF ANY	OTHER KNOWN, POTENTIAL, OR	ALLEGED HAZARDS	·
III. TOTAL POPULATION	POTENTIALLY AFFECTED: _	118+	
IV. COMMENTS			
Papulation 31 resider using the 3:8 V. SOURCES OF INFOR	count has soit. spees are being a ferson per househol MATION ICHO Specific references . 9. 514	been conducted, honorum enrected to minispel was I, 118 persons are affects we lies sample energies 1000115:	at is known that in Supply theyord
- uperfund	central file #	94501	

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POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION

I. IDENTIFICATION							
O1 STATE	02 SITE NUMBER 981473515						

	PART 4 - PERMI	T AND DE	SCRIP	TIVE INFORMAT	ION	10 19019 1000
II. PERMIT INFORMATION						
1 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE IS	SSUED	04 EXPIRATION DATE	D5 COMMENTS	
□ A. NPDES						
□ B. UIC					.,	
					·	
☐ C. AIR		+				
D. RCRA						······································
E. RCRA INTERIM STATUS						
☐ F. SPCC PLAN						
G. STATE (Specify)						<u> </u>
E.H. LOCAL (Specify)						
□ I. OTHER (Specify)						
J. NONE						
. SITE DESCRIPTION						
STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT 03 UNIT C	OF MEASURE	04 TR	EATMENT (Check of that a)	opły)	05 OTHER
☐ A. SURFACE IMPOUNDMENT				NOTHER ATION		
B. PILES			i i	INCENERATION	CTION	☐ A. BUILDINGS ON SITE
C. DRUMS, ABOVE GROUND				UNDERGROUND INJE CHEMICAL/PHYSICA		NO
□ D. TANK, ABOVE GROUND				BIOLOGICAL	-	
☐ E. TANK, BELOW GROUND				WASTE OIL PROCESS	SING	06 AREA OF SITE
CJ F. LANDFILL	800 BAR	RELS	□ F. \$	SOLVENT RECOVERY	•	
S G. LANDFARM		····	□ G .	OTHER RECYCLING/	RECOVERY	1Acre
☐ H. OPEN DUMP			□ H.	OTHER(Spec	sity)	
☐ 1. OTHER		1			,	•
. CONTAINMENT						
CONTAINMENT OF WASTES (Check one)						
A ADEQUATE, SECURE	□ B. MODERATE	💢 C. IN	ADEQU	ATE, POOR	D. INSECU	RE, UNSOUND, DANGEROUS
DESCRIPTION OF DRUMS, DIKING, LINERS, During 1978 apperum 50te. Austher 750 Phosphate Rif or Doth Lenlines w ACCESSIBILITY	ately 50 dums, o dums of the of Several at s	some	war	les were p	surid e	into an ald
D1 WASTE EASILY ACCESSIBLE: YE	S 🗆 NO					
SOURCES OF INFORMATION (Cite s)	pecific references, e.g. state files, samp	ole analysis, repor	ts)			
Superfund File	# 94508					Masley, 6 enose

€EPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

I. IDENTIFICATION 01 STATE 02 SITE NUMBER TN 981473515

PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA II. DRINKING WATER SUPPLY 01 TYPE OF DRINKING SUPPLY 02 STATUS 03 DISTANCE TO SITE MONITORED SURFACE ENDANGERED **AFFECTED** WELL A. 1)(1500 FT (mi) COMMUNITY A. 🗆 B. 🏋 A. 52 В. 🗆 C. D F. 🗅 NON-COMMUNITY -C. 🗆 D. 🗆 E. 🗆 D. D III. GROUNDWATER 01 GROUNDWATER USE IN VICINITY (Check one) A. ONLY SOURCE FOR DRINKING B. DRINKING
(Other sources av C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources evaluable) D. NOT USED, UNUSEABLE COMMERCIAL, INDUSTRIAL, IRRIGATION 03 DISTANCE TO NEAREST DRINKING WATER WELL. 02 POPULATION SERVED BY GROUND WATER 07 POTENTIAL YIELD OF AQUIFER 04 DEPTH TO GROUNDWATER **05 DIRECTION OF GROUNDWATER FLOW** 06 DEPTH TO AQUIFER OF CONCERN 08 SOLE SOURCE AQUIFER ☐ YES ☐ NO 30 09 DESCRIPTION OF WELLS (including useage, depth, and location re Domestic wells in the area no generally cased 20-25 (ft) into the bedrock with unscreened open love extending to depths 3a few hundred ft to more than 2000 ft. 10 RECHARGE AREA 11 DISCHARGE AREA ☐ YES COMMENTS T YES COMMENTS □ NO □ NO IV. SURFACE WATER OT SURFACE WATER USE (Check one) ☐ A. RESERVOIR, RECREATION DRINKING WATER SOURCE B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED 02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER AFFECTED DISTANCE TO SITE (mi) (mi) V. DEMOGRAPHIC AND PROPERTY INFORMATION Demo geaphies 01 TOTAL POPULATION WITHIN 02 DISTANCE TO NEAREST POPULATION ONE (1) MILE OF SITE TWO (2) MILES OF SITE THREE (3) MILES OF SITE C. NO. OF PERSONS _(mi) NO OF PERSONS NO. OF PERSONS 03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE 04 DISTANCE TO NEAREST OFF-SITE BUILDING

D5 POPULATION WITHIN VICINITY OF SITE (Provide narrabive description of nature of population within vicinity of site, e.g., jural, village, densely populated urban area.

9		$D\Delta$
	L.i	

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

I. IDENTIFICATION 01 STATE 02 SITE NUMBER 981473515

PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA VI. ENVIRONMENTAL INFORMATION 01 PERMEABILITY OF UNSATURATED 20NE (Check one) □ A. 10⁻⁶ - 10⁻⁸ cm/sec □ B. 10⁻⁴ - 10⁻⁶ cm/sec □ C. 10⁻⁴ - 10⁻³ cm/sec □ D. GREATER THAN 10⁻³ cm/sec 7/0-3 cm/sec for Korat linesto. 02 PERMEABILITY OF BEDROCK (Check one) XB. RELATIVELY IMPERMEABLE C. RELATIVELY PERMEABLE D. VERY PERMEABLE (10⁻⁴ - 10⁻⁶ cm/sec) (Greater than 10⁻² cm/sec) (Greater than 10⁻² cm/sec) □ A. IMPERMEABLE 03 DEPTH TO BEDROCK 04 DEPTH OF CONTAMINATED SOIL ZONE 05 SOIL pH 06 NET PRECIPITATION 07 ONE YEAR 24 HOUR RAINFALL DIRECTION OF SITE SLOPE | TERRAIN AVERAGE SLOPE SITE SLOPE 10 SOUTH WEST 09 FLOOD POTENTIAL ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY SITE IS IN _____ ____ YEAR FLOODPLAIN 11 DISTANCE TO WETLANDS (5 acre minimum) 12 DISTANCE TO CRITICAL HABITAT (of endangered species NON Identified NONE IDENTIFIED ESTUARINE ENDANGERED SPECIES: 13 LAND USE IN VICINITY DISTANCE TO: RESIDENTIAL AREAS; NATIONAL/STATE PARKS. AGRICULTURAL LANDS PRIME AG LAND COMMERCIAL/INDUSTRIAL FORESTS, OR WILDLIFE RESERVES AG LAND __ (ml) D. ___ The Kennon Dite is a 2+-acre parcel within the 146 acre property located in Rural witheamson county and on med in Emmitt on brase Kennon. This areas most important farming Commendatives linestock. The fenced tract containing the disposal area is currently used as a pasture for cattles of he area (primarily along the wilson like/Split fog Rorl) contains sere as (old form to see at well as Seneral new viridences. The (core is are situated on four to few dare tracts. 14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY VII. SOURCES OF INFORMATION (Cité specific references, e.g., state files, semple enelysis, reports) fil1#94508

\$EPA		OTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT ART 6 - SAMPLE AND FIELD INFORMATION	I. IDENTIFICATION 01 STATE 02 SITE NUMBER TN 9814 73515		
II. SAMPLES TAKEN	<u>, </u>				
SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO		03 ESTIMATED DATE RESULTS AVAILABLE	
GROUNDWATER	9	IT Corporation 5815 miles	ele TV	INCHUDED (1)	
SURFACE WATER					
WASTE	1.3	17 Corporation 5815 miles Specialis el Assayo, neshille	20	Red 1	
AIR					
RUNOFF					
SPILL			- 4		
SOIL	4	17 Conjunction, 5815 mil	Llebroh pha	REF#1-	
VEGETATION					
OTHER					
III. FIELD MEASUREMENTS T	AKEN				
O1 TYPE	02 COMMENTS				
				· · · ·	
IV. PHOTOGRAPHS AND MAI	PS NO	PHOTOGRAPHS			
01 TYPE (GROUND AERIA		02 IN CUSTODY OF			
03 MAPS 04 LOCATION	ON OF MAPS				
I NO TES	greene	_ 13-14			
V. OTHER FIELD DATA COLL	ECTED (Provide narrative desc	ription)			
V					

VI. SOURCES OF INFORMATION (Cité specific reterences, e.g. state liles semple arialysis, reports)

Superfund Central File # 94 508

ŞEPA P°		S	SITE INSPE	ARDOUS WASTE SITE ECTION REPORT	DI STATE O	1. IDENTIFICATION 101 STATE 02 SITE NUMBER 7W 9814 73515	
		PA	RT 7 - OW	NER INFORMATION	1/5	<u></u>	217 100 -
II. CURRENT OWNER(S)				PARENT COMPANY (II applicable)			
01 NAME EmmetteRase Kennas	44	02 D+B N	IUMBER	OB NAME		09 D	O+B NUMBER
03 STREET ADDRESS (P.O Box, RFD #. OIC)	<u> </u>	04 5	SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)		L,	11 SIC CODE
Emmette Rose Kennor 03 STREET ADDRESS (PO BOX. RFD P OIC) 2934 Sides Dring 05 CITY	•					1	
OS CITY		E 07 ZIP CO		12 CITY	13 STATE	14 Z	IP CODE
nashrille	TU		204				
O1 NAME		02 D+B N	IUMBER	OB NAME	·	Q & D	O+B NUMBER
03 STREET ADDRESS (P.O. Box. RFD #, etc.)		045	SIC CODE	10 STREET ADDRESS (P O Box, RFD P. atc.)	<u> </u>	<u>.</u>	11 SIC CODE
05 CITY	06 STATE	E 07 ZIP CC	ODE	12 CITY	13 STATE	142	IP CODE
O1 NAME		02 D+B N	NUMBER	08 NAME		09 D)+B NUMBER
03 STREET ADDRESS (P.O. Box. RFD . etc.)		04 \$	SIC CODE	10 STREET ADDRESS (P.O. Box. RFD #, etc.)		Ц,	11SIC CODE
						}	l
05 CITY	06 STATE	E 07 ZIP CO	ODE	12 CITY	13 STATE	14 21	IP CODE
01 NAME		02 D+BN	IUMBER	OB NAME		09 D)+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, stc.)		04 S	SIC CODE	10 STREET ADDRESS (P.O. Box, RFD # . e/c.)		Ц	11 SIC CODE
05 CITY	06 STATE	E 07 ZIP CO	ODE	12 CITY	13 STATE	142	(IP CODE
III. PREVIOUS OWNER(S) (List most recent firs		<u></u>		IV. REALTY OWNER(S) (If applicable list in	-net recent firsti	<u></u>	
O1 NAME	,	02 D+B N	IUMBER	OI NAME		02 D)+B NUMBER
O3 STREET ADDRESS (P.O. Box, RED #, BIC.)		04 8	SIC CODE	O3 STREET ADDRESS (P. D. Box, RFD F, etc.)	-		04 SIC CODE
05 CITY	OBSTATE	07 ZIP CO	DE	OS CITY	06 STATE	07 Z	(P CODE
01 NAME	-	02 D+8 N	UMBER	O1 NAME		Ö2 D	D+B NUMBER
03 STREET ADDRESS (P.O. Box. RFO *. etc.)		04 \$/	SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		1	04 SIC CODE
05 CITY	06 STATE	07 ZIP COI	DE	05 CITY	06 STATE	07 ZI	IP CODE
01 NAME		02 D+B N	:UMBER	01 NAME		02 D	O+B NUMBER
03 STREET ADDRESS (P.O. Box. RFQ.#. etc.)		04 SI	SIC CODE	03 STREET ADDRESS (P.O. Box, RFD €. €tc.)			04 SIC CODE
05City	OSSTATE	07 ZIP CO	ODE	05 CITY	06 STATE	07 ZI	P CODE
V. SOURCES OF INFORMATION (Cité spec	cific references	e.o., state file	as sample anklysir	renors)			
State Superfind File (FILE NO. 94-508					_		

EPA FORM 2070-13 (7-61)

⊋FP Δ		EFPA		ARDOUS WASTE SITE ECTION REPORT ATOR INFORMATION	01 STATE 0	10 TICATION 2 SITE NUMBER 98147351
II. CURRENT OPERAT	OR (Provide If different fro	en owner)		OPERATOR'S PARENT COMPA	NY (If applicable)	
01 NAME		O:	2 D+B NUMBER	10 NAME		11 D+B NUMBER
SAME PO	Sox, RFD #, etc.)		04 SIC CODE	12 STREET ADDRESS (P.O. Box. RFD #, etc.)	,	13 SIC CODE
05 CITY		OB STATE O	7 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER	<u></u>				
III. PREVIOUS OPERA	FOR(S) (List most recent to	wat; provide only i	il different from owner)	PREVIOUS OPERATORS' PARE	NT COMPANIES (#	
01 NAME		0	2 D+B NUMBER	10 NAME		11 D+B NUMBER
03 STREET ADDRESS (P.O. &	lox, RFD #, etc.)		04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.,)	13 SIC CODE
05 CITY		06 STATE 0	7 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER (DURING THIS F	PERIOD			
01 NAME	1	Of	2 D+8 NUMBER	10 NAMÉ		11 D+8 NUMBER
03 STREET ADDRESS (P.O. BO	ox, RFD #, etc.)		04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD P. etc.)		13 SIC CODE
05 CITY		OB STATE OF	7 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
06 YEARS OF OPERATION	09 NAME OF OWNER	DURING THIS I	PERIOD			
01 NAME	<u>l</u>	J 3:	2 O+B NUMBER	10 NAME		11 D+B NUMBER
03 STREET ADDRESS (P.O. Bo	ix, RFD #, stc.)		04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	_	13 SIC CODE
05 CITY		DB STATE 07	7 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
D8 YEARS OF OPERATION	09 NAME OF OWNER	DURING THIS F	PERIOD			
IV. SOURCES OF INFO	RMATION (Cite specific	c references, e.g.	, state files, sample analys	ils, reports)		

	POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 9 - GENERATOR/TRANSPORTER INFORMATION I. IDENTIFICATION O1 STATE 02 SITE NUMBER TN 98147351						
	02 D+B NUMBER						
·:	04 SIC CODE	1					
06 STATE	07 ZIP CODE	- 					
	02 D+B NUMBER	01 NAME	ľ	02 D+B NUMBER			
	TND001981240		į				
	04 SIC CODE	D3 STREET ADDRESS (P.O. Box, RFD#, etc	:.)	04 SIC CODE			
TOB STATE	LOZ ZIR CODE	OF CITY	IOA STATEL	7 719 0005			
		100 0/11	العامرة	U, ZIF GODE			
170		los vans		5 5 4 5 4 1 K 1 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5			
	OS D+R NOMBEH	O1 NAME	[02 D+B NUMBER			
	04 SIC CODE	03 STREET ADDRESS (P.O. Box. RFD *. *10	:	04 SIC CODE			
06 STATE	07 ZIP CODE	05 CITY	06 STATE	D7 ZIP CODE			
			<u> </u>	······································			
-	02 D+B NUMBER	01 NAME	To	2 D+B NUMBER			
	TADADIOLEFILO						
GENESCO TO		03 STREET ADDRESS (P.O. Box. RED +. etc.)		04 SIC CODE			
D6 STATE	07 ZIP CODE	05 CITY	06 STATE	7 ZIP CODE			
ープ	27200						
	02 D+B NUMBER	01 NAME		2 D+B NUMBER			
	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD *, *Ic.	.,	04 SIC CODE			
06 STATE	07 ZIP CODE	05 CITY	06 STATE 0	7 ZIP CODE			
pecific references. (g , stala lilas, sample analysis, re	ports:					
7450	8 CENTRE	AL SUIERFUND IF ILE	(3, NOCHY)	LLE CENTR			
	O6 STATE O6 STATE O6 STATE O6 STATE	06 STATE 07 ZIP CODE 04 SIC CODE 05 STATE 07 ZIP CODE 06 STATE 07 ZIP CODE 07 ZIP CODE 08 STATE 07 ZIP CODE 09 STATE 07 ZIP CODE 09 STATE 07 ZIP CODE 09 STATE 07 ZIP CODE 00 STATE 07 ZIP CODE 00 STATE 07 ZIP CODE	02 D+B NUMBER	02 D+B NUMBER			

EPA FORM 2070-13 (7-81)

\$EPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

1. STATE 02 SITE NUMBER

70 9814 73515

II PAST RESPONSE ACTIVITIES (Continued)	TO THOU MEDI ONCE ACTIVE	IIILO
	02 DATE JANUAR 5 orlen was construct	1986 03 AGENCY DUWER (GERAGHTY MILLS Ed during 1/1986 along a france) designed to prevent than fait of 03 AGENCY
contaminated sediment of six	Ref	designed to present wanted of
01 S. CAPPING/COVERING 04 DESCRIPTION	02 DATE	03 AGENCY
01 D T. BULK TANKAGE REPAIRED 04 DESCRIPTION	02 DATE	03 AGENCY
01 D. U. GROUT CURTAIN CONSTRUCTED 04 DESCRIPTION	02 DATE	03 AGENCY
01 V. BOTTOM SEALED 04 DESCRIPTION	02 DATE	03 AGENCY
01 DW. GAS CONTROL 04 DESCRIPTION	O2 DATE	03 AGENCY
01 T X. FIRE CONTROL 04 DESCRIPTION	02 DATE	03 AGENCY
01 C Y. LEACHATE TREATMENT 04 DESCRIPTION	02 DATE	O3 AGENCY
01 🖸 Z. AREA EVACUATED 04 DESCRIPTION	02 DATE	03 AGENCY
01 (1. ACCESS TO SITE RESTRICTED 04 DESCRIPTION	02 DATE	03 AGENCY
01 E 2. POPULATION RELOCATED 04 DESCRIPTION	O2 DATE	03 AGENCY
01 X3 OTHER REMEDIAL ACTIVITIES 04 DESCRIPTION	O2 DATE	·
Geraghty & miller was re	etained by Gen	e Kennon site . frelinning
shrestyations have been	modely Geologic	al associates and the State
Study of the area. REF #	US65 is present	the conducting a Regional
municipal water fents ore all houses identified III. SOURCES OF INFORMATION (CHO Specific reterences . O g. 51	having construct	ed in the community to
		sing groundwater. Ry #
Supergund Contract File	94.508	



POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

TW 9814 73515

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION YES [NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

State & Lennesses esque & Communications on der to Emmett & Rook Kennon 2934 Sides Drive nashville Ln, 3720 th. To Genesco Inc, Egent for service & process, W.C. Oconnor Genesco Par 12, nashville denn. 37202. The order stipulates that the Respondents address the following:

A Drive diate Remedial measures.

B. Initial assessment

c - Envestigation program

D - Remodial action selection and Implementation

E - Site monitoring & maintenance.

Ref # 15

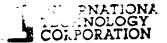
III. SOURCES OF INFORMATION (Che specific references, e.g., state files, sample analysis, reports)

State super free file 94500 commences och

REF.]

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.



NALYTICAL SERVICES

5815 Middlebro - Pike • Knoxville, Tennessee 37921 • 615-588-6401



CERTIFICATE OF ANALYSIS

TO: IT Corporation

ATTN: Cliff Vaughan 312 Directors Drive Knoxville, TN 37923 DATE REPORTED:

ORDER NUMBER:

February 6, 1986

PROJECT CODE: ITEK 21683

TN Contract FA-1353

Sample Description: Kennon Site Pit A, 1-22-86, 1:30

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	290.
acrylonitrile	ND	trans-1,2-dichloroethene	3,000.
benzene	200.	1,2-dichloropropane	CA .
bromodichloromethane	ND	cis-1,3-dichloropropene	C/I
bromoform	ВĎ	trans-1,3-dichloropropene	CA
bromomethane	DИ	ethyl benzene	300.
carbon tetrachloride	DИ	methylene chloride	340.
chlorobenzene	14.	1,1,2,2-tetrachloroethane	ND
chloroethane	750.	tetrachloroethene	110.
2-chloroethylvinyl ether	ND	toluene	120,000.
chloroform	ND	1,1,1-trichloroethane	2,000.
chloromethane	ND	1,1,2-trichloroethane	[*] ND
dibromochloromethane	ND	trichloroethene	75.
1,1-dichloroethane	4,300.	vinyl chloride	<10.
1,2-dichloroethane	1,200.	·	

Remarks: ND = Not detected.

<10. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)</pre>

Sworn to and subscribed before me this 6th day of February, 1986

My commission expires January 16, 1988

Approved by

Laboratory Manager

Tille





LUBALYTICAL SERVICE 3



5815 Middlebrook Pike • Knoxville, Tenns - Se 37901 • 615-588-6401

CERTIFICATE OF ANALYSIS

IT Corporation TO:

ATTN: Cliff Vaughan 312 Directors Drive Knoxville, TN 37923

L'AITE REPORTED:

CIIDER NUMBER:

February 6, 1986

ITEK 21683 PROJECT CODE:

TN Contract FA-1353

Sample Description: Kennon Site Pit B, Grab Soil, 1-22-86, 11:30

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

C omp ou n d	Concentration (ppb)	Compound	Concentration (ppb)
acrolein acrylonitrile benzene bromodichloromethane bromomethane carbon tetrachloride chlorobenzene	ND ND 1,000. NO ND ND ND 530.	1,1-dichloroethene trans-1,2-dichloroethene 1,2-dichloropropane cis-1,3-dichloropropene trans-1,3-dichloropropene ethyl benzene methylene chloride 1,1.2,2-tetrachloroethane	3,300. 1,300. ND ND ND ND 19,000. 3,300. ND
chloroethane 2-chloroethylvinyl ether chloroform chloromethane dibromochloromethane 1,1-dichloroethane 1,2-dichloroethane	ND <250. ND ND ND 950. 11,000.	tetrachloroethene toluene 1,1,1-trichloroethane 1,1,2-trichloroethane trichloroethene viny1 chloride	220,000. 6,200,000. 160,000. ND 6,900. ND

Remarks: ND = Not detected.

<250. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

Swom to and subscribed before me this. <u>February.</u> My commission expires.

Approved 34

Laboratory Manager

Neigry Public



ANALYTICAL **SERVICES**

5815 Middlebrook Pike . Knoxville, Tennossee 37921 . 615 and 6401

CERTIFICATE OF ANALYSIS

IT Corporation TO:

ATTN: Cliff Vaughan 312 Directors Drive Knoxville, TN 37923

DATE REPORTED:

ORDER NUMBER:

February 10, 1986

PROJECT CODE:

TEK 21702 3N Contract FA-1313

Sample Description:

Two (2) water samples and one (1) soil sample received

January 29, 1986

Concentration units are mg/liter (ppm) unless otherwise stated

PRIORITY POLLUTANT METALS

Kennon Site, 7-28-86 Field #1 Field #3, Seep (soil) 10:30 Hackett Spring Field #3, Seep 9:15 (water) 10:30 (uc/gram, ppm) Antimony <0.001 <0.002* <0.05 <0.001 0.217 Arsenic 18. Beryllium <0.002 0.010 0.69 <0.03 <0.001 <0.001 Cadmium 9.3 Chromium <0.01 0.15 6.5 <0.002 0.088 Copper <0.01 0.12 7.6 Lead Mercury <0.001 <0.001 0.048 <0.01 <0.01 8.3 Nickel Selenium <0.001 <0.03* <0.3* Silver <0.002 <0.002 <0.1 Thallium <0.02 <0.02 <0.6 Zinc <0.001 0.519 30. Cyanide <0.01 0.20 0.01

Copy to: Ronnie Bowers

Assistant such course de la

Tennessee Department of Health & Environment

Division of Solid Waste Management

701 Broadway Street, 4th Floor Customs House

Nashville, TN 37219-5403

Sworn to and subscribed before me this February, 1986 January My commission expires

Laboratory Director

Title

Notary Public

^{*} Detection limits higher than normal due to sample matrix interferences.



AMAINTICAL SER ICES

5815 Middlebrook Pike • Krickshell Februs Ssee 37921 • 615-588-6401



CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: PROJECT CODE:

February 10, 1986

ITEK 21702

ORDER NUMBER: TN Contract FA-1353

Sample Description: Kennon Site, Field #1, Hackett Spring, 1-28-86, 9:15

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (pph)	Compound	Concentration (pph)
acrolein	ND	1,1-dichloroethene	СИ
acrylonitrile	GN	trans-1,2-dichloroethene	10.
benzene	CN	1,2-dichloropropane	СИ
bromodichloromethane	ND	cis-1.3-dichloropropene	СИ
bromoform	GN	trans-1,3-dichloropropene	ND
bromomethane	CM	ethyl benzene	CN
carbon tetrachloride	ДN	methylene chloride	. ND
chlorobenzene	CH	1.1.2.2-tetrachloroethane	CN
chloroethane	ND	tetrachloroethene	ND
2-chloroethylvinyl ether	D	toluene	ND
chloroform	СИ	1,1,1-trichioroethane	ďИ
chloromethane	СИ	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	ND
1,1-dichloroethane	<10.	vinyl chloride	ND
1.2-dichloroethane	ND	711.g 7 Girlot 1 GG	

Remarks: ND = Not detected.

<10. = Detected but at a level less than the quantitation limit. (Numerical value

is the quantitation limit.)

Copy to: Ronnie Bowers

Tennessee Department of Health & Environment

Division of Solid Waste Management

701 Broadway Street, 4th Floor Sustoms House

Nashville, TN 37219-5403

Swom to and subscribed before me this 10th day of February, 1986

My commission expires January 16, 1988

Notary Public

Agricated by

Laboratory Director

Title



5815 Middletir. - Fike + ht ...

. Tennessee 27921 • 615-588-6401

ERTIFICATE OF ANALYSIS

IT Corporation TO: ATTN: Cliff Vaughan 312 Directors Drive

Knoxville, TN 37923

DATE REPORTED: ORDER NUMBER: February 11, 1986

ITEK 21765 PROJECT CODE:

TN Contract FA-1363

Job #41504

Sample Description: Kennon Site, Hacket Spring, Field #1, 2-7-86, 9:00

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS 1

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	ND
acrylonitrile	ND	trans-1,2-dichloroethene	70.
benzene	ND	1,2-dichloropropane	ND
bromodichioromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	ND
carbon tetrachloride	ПD	methylene chloride	. ND
chlorobenzene	ND	1,1,2,2-tetrachloroethane	ND
chloroethane	<10.	tetrachloroethene	GИ
2-chloroethylvinyl ether	ND	toluene	ND
chicroform	ND	1,1,1-trichloroethane	13.
chloromethane	ND	1,1,2-trichloroethane	СИ
dibromochloromethane	ND	trichloroethene	<10.
1,1-dichloroethane	26.	vinyl chloride	ND
1.2-dichloroethane	<10.	•	

Remarks: ND = Not detected.

<10. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

Ronnie Bowers

Tennessee Department of Health & Environment

Division of Solid Waste Management

701 Broadway Street, Ath Floor Customs House

Nashville, TN 37213-5403

Swom to and subscribed before me this. February. January My commission expires

Laboratory Manager

Thie



Notary Fublic

5818 Middlebrook Pike • Kripxville, Tennessee 37921 • 615-588-6401



CERTIFICATE OF ANALYSIS

TO: IT Componetion

ATTN: Cliff Vauchan 312 Directors Drive Knoxville, TN 37923 DATE REPORTED:

February 26, 1986

FROJECT CODE:

ITEK 21854

ORDER NUMBER:

TN Contract FA-1353

Sample Description: Kennon Site, Field #17, Well #8, 2-21-86, 10:30

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Comp ound	Concentration (ppb)
acrolein acrylonitrile benzene bromodichloromethane bromoform bromomethane carbon tetrachloride chlorobenzene chloroethane 2-chloroethylvinyl ether	(ppb) ND ND ND ND ND ND ND ND ND ND ND ND ND	1,1-dichloroethene trans-1,2-dichloroethene 1,2-dichloropropane cis-1.3-dichloropropene trans-2,3-dichloropropene ethyl penzene methylene chloride 1,1,2,2-tetrachloroethane tetrachloroethene toluene	(ppb) 13. / 350. / ND ND ND <10. / 10. / ND <10. / 1,600. / (m) Feed (m)
chloroform chloromethane dibromochloromethane 1,1-dichloroethane 1,2-dichloroethane	<10. ND ND 200	1,1,1-trichloroethane 1,1,2-trichloroethane trichloroethene vinyl chloride	57. ¿ ND ND ND

Remarks: ND = Not detected.

<10. = Detected but at a level less than the quantitation limit. (Numerical value

is the quantitation limit.)

Copy to: Ronnie Bowers

Tennessee Department of Health & Environment

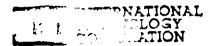
Division of Solid Waste Management

701 Prozéway Street, 4th Floor Customs House

Nashville, TN 37219-5403

Swom to and subscribed before me this_		26th	
day of Febru			
My commission expires _	dandany	15,	1988_
22.103	7 /134	ر رئيسا	10

Laboratory Manager



".NA' YTICAL SEL VICES



5815 Middlebrook Piké • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: IT Corporation

ATTN: Cliff Vaughan 312 Directors Drive Knoxville, TN 37923 DATE REPORTED: March 18, 1986 PROJECT CODE: ITEK 21983

ORDER NUMBER: TN Contract FA-1353

Sample Description: Field #50, Kennon Site, Myatt Well, 3-13-86, 9:20

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	СМ	1.1-dichloroethene	ND
acrylonitrile	CM	trans-1,2-dichloroethene	ND
benzene	СЯ	1,2-dichloropropane	GN
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	KD CH	trans-1,3-dichloropropene	ИD
bromomethane	ND	ethyl benzene	ďИ
carbon tetrachloride	CM	methylene chloride	ND
chlorobenzene	Cit	1,1,2,2-tetrachloroethane	ND
chloroethane	GN	tetrachloroethene	ND
2-chloroethylvinyl ether	CA	toluene	ND
chloroform	GA	1,1,1-trichloroethane	ND
chloromethane	CA	1,1,2-trichloroethane	СИ
dibromochloromethane	CM	trichloroethene	ND
1,1-dichloroethane	СИ	vinyl chloride	ND
1.2-dichloroethane	כא	ting t childride	

Remarks: ND = Not detected.

<10. = Detected but at a level less than the quantitation limit. (Numerical value
 is the quantitation limit.)</pre>

Copy to: Ronnie Bowers

Tennessee Department of Health & Environment

Division of Solid Waste Management

701 Broadway Street, 4th Floor Sustoms House

Nashville, TN: 37219-5403

Swom to and subscribed t	before me this 18th
	rch, 1986
My commission expires	January 16, 1988
	· > 11-11-
	(1)

Approved of Laboratory Manager

Title



Notary Public

AFT LYTICAL SERVICES

ERNE Middlebrook Pike . Knoxville, Tennessed 97921 . 615-588-6401



CERTIFICATE OF ANALYSIS

TO: IT Corporation ATTN: Cliff Vauchan

312 Directors Drive Knoxville, TN 37923 DATE REPORTED: March 25, 1986 ITEK 22002 PROJECT CODE:

ORDER NUMBER: TN Contract FA-1353

Sample Description: Kennon Site, Hackett Spring, 3-13-86, 2:00

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

C ompound	Concentration (ppb)	Compound	Concentration (pph)
acrolein acrylonitrile benzene bromodichloromethane bromoform bromomethane carbon tetrachloride chlorobenzene chloroethane	ND ND ND ND ND ND ND ND	1,1-dichloroethene trans-1,2-dichloroethene 1,2-dichloropropane cis-1,3-dichloropropene trans-1,3-dichloropropene ethyl benzene methylene chloride 1,1,2,2-tetrachloroethane tetrachloroethene	ND 66. ND ND ND ND ND ND
2-chloroethylvinyl ether chloroform chloromethane dibromochloromethane 1,1-dichloroethane 1,2-dichloroethane	ND ND ND ND 26. <10.	toluene 1,1,1-trichloroethane 1,1,2-trichloroethane trichloroethene vinyl chloride	NO 22. NO <10. NO

Remarks: ND = Not detected.

<10. = Detected but at a level less than the quantitation limit. (Numerical value

is the cuantitation limit.)

Copy to: Ronnie Bowers

Tennessee Decartment of Health & Environment

Division of Solid Waste Management

701 Broadway Street, 4th Floor Customs House Nashville, TN 37219-5403

Swom to and subscribed before me this day of _ My commission expires

Laboratory Manager

Title

Notary Public

SERVICES

4 R 03 K

5815 Middlebrook 5 ke • knoxville, Tennessee 20021 • £15 558-6401



CERTIFICATE OF ANALYSIS

TO: IT Corporation

ATTN: Cliff Vaughan 312 Directors Drive Knoxville, TN 37923 DATE REFORTED:

April 1, 1986

PROJECT CODE:

1TEK 22038

ORDER NUMBER:

TN Contract F4-1353

Job #409374.01.71.89

Sample Description: Field #61, Kennon Site, Hackett Sp., 3-15-86, 2:15

VOLATILE ORGANIC PRIORITY POLLUTART ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	ND
acrylonitrile	ND	trans-1,2-dichloroethene	41.
- benzene	ND	1.2-dichloropropane	СИ
bromodichloromethane	ND	cis-1,3-dichlorophopene	ND
bromoform	ND	trans-1,3-dichloropropene	МÐ
bromomethane	ND	ethyl benzene	Cit
carbon tetrachloride	ND	methylene chloride	<10.
chlorobenzene	ND .	1,1.2,2-tetrachloroethane	CN
chloroethane	<10.	tetrachloroethene	ND
2-chloroethylvinyl ether	ND	toluene	КЭ
chloroform	ND	1,1.1-trichloroethane	17.
crioromethane	МD	1,1,2-trismloroethane	ND C/A
dibromochloromethane	ND	trichloroethene	<10.
1,1-dichloroethana	24.	vinyl chioride	GM
1.2-dichloroethane	ND		

Remarks: ND = Not detected.

<10. = Detected but at a level less than the cuantitation limit. (Numerical value

is the quantitation limit.)

Copy to: Ronnie Bowers

Tennessee Department of Health & Environment

Division of Solid Waste Management

701 Broadway Street, 4th Floor Customs House

Nashville, TN 37219-5403

Sworn to and subscribed before me this 1st day of April, 1986

My commission expires January 16, 1988

My Francis

.

Laboratory Manager

True



Notary Fublic

ORGANIC LABORATORY ANALYSIS REPORT

	•	7-86 Date Received: 3-	
ampled Collected By: <u>RL</u>	,	Date Completed 3-	
ample Source & Identification	" Kennor Site	Hackett Spring Fiel	d# E
Grab Water W	illiamson Co.	·	
State Superfun		1	
Via C Jupiter in	• • •	•	
	INTEGRALES ASPERSO	CHEMIC MIMISIS	
۳ م د د د ۱۰ ادر د د د م ۳ م و و و د م س	**************************************	NOA HOTTI E IC DIMEND ONT	ስ Λ ፕሮዚልም <u>ታ</u>
ISING ULTRA HIGH PURIT	Y HELIUM. THE TRI	D VON BOTTLE IS PURGED ONTO THE THEN DESORBED TO A T ECONDUCTIVITY DETECTOR IN	TONGON DOD
COLUMN:	176 717_1 00 076	раквораск в	
STARTING TEMP:			
INITIAL HOLD:	4 KHN.		
PROGRAM RATE			
FINAL TEMP:	ZVORO 1 JULIANS.		
	•		
Сомроинр	RESULTS (ppb)	COMLONHD	RESULTE (p)
	RESULTS (ppb)	Dibromochloromethane	RESULTS (p)
Inlorome thane Bromome thane	<u></u>	Dibromochloromethane 1,1,2-Trichloroethane	N/A
Inforomethane fromomethane Inyl Chloride	15/15 15/15 16/15	Dibromochloromethane 1,1,2-Trichloroethane Bromoform	NA
Chloromethane Bromomethane Unyt Chloride Chloroethane	15/16 15/16 15/16 15/16	Dibromochloromethane 1,1,2-Trichloroethane Bromoform 1,1,2,2-Tetrachloroethylene	N/A
Chloromethane Bromomethane Mnyl Chloride Chloroethane Methylene Chloride ,1-Dichloroethylene		Dibromochloromethane 1,1,2-Trichloroethane Bromoform	NA rai
Informational Framemethane Inyl Chloride Informational Methylene Chloride Methylene Chloride Framochloroethylene Dromochloromethane	15/16 15/16 15/16 15/16	Dibromochloromethane 1,1,2-Trichloroethane 2romoform 1,1,2,2-Tetrachloroethylene 1,1,2,2-Tetrachloroethyne	NA Yan
Informational fromational fromational fromational fingl Chlorida Informational fingles Chlorida fingles Chlo	1/16 1/16 1/16 1/16 1/16 1/16 1/16 1/16	Dibromochloromethane 1,1,2-Trichloroethane 2romoform 1,1,2,2-Tetrachloroethylene 1,1,2,2-Tetrachloroethyne	NA VA VA
Informational Scomonations of the Indicated of the Indicated of the Indicated of the Indicated of the Indicated of the Indicated of the Indicated of the Indicated of the Indicated of the Indicated of the Indicated of the Indicated of the Indicated of I	15/6 15/6	Dibromochloromethane 1,1,2-Trichloroethane 2romoform 1,1,2,2-Tetrachloroethylene 1,1,2,2-Tetrachloroethyne	NA Yan
Chloromethane Dromomethane Mnyl Chloride Chloride Chloroethane Methylene Chloride J-Dichloroethylene Dromochloromethane J-Dichloroethane Chloroethane Chloroethane Chloroethane Chloroform	15/6 16/6 16/6 16/6 16/6 16/6 14.3 143.8 16/6	Dibromochloromethane 1,1,2-Trichloroethane 2romoform 1,1,2,2-Tetrachloroethylene 1,1,2,2-Tetrachloroethyne	NA VA VA
Chloromethane Dromomethane May I Chloride Chloride Chloride Lidoroethane Dromochloroethylene Li-Dichloroethane Li-Dichloroethane Chloride Chloroethane Li-Dichloroethane Chloroform	18/6 18/6	Dibromochloromethane 1,1,2-Trichloroethane 2romoform 1,1,2,2-Tetrachloroethylene 1,1,2,2-Tetrachloroethyne	NA VA VA
Chloromethane Iromomethane Inyl Chloride Chloroethane Methylene Chloride Ji-Dichloroethylene Iromochloromethane Irans-1,2-Dichloroethylene Chloroform I,2-Dichloroethane	0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6	Dibromochloromethane 1,1,2-Trichloroethane 2romoform 1,1,2,2-Tetrachloroethylene 1,1,2,2-Tetrachloroethyne	NA YA W
COMPOUND Chloromethane Gromomethane Vinyl Chloride Chloroethane Methylene Chloride I,1-Dichloroethylene Gromochloromethane I,1-Dichloroethane I,1-Dichloroethane I,2-Dichloroethane I,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane Trichloroethylene	18/6 18/6	Dibromochloromethane 1,1,2-Trichloroethane 2romoform 1,1,2,2-Tetrachloroethylene 1,1,2,2-Tetrachloroethyne	NA YA W



A CLYTICAL LERVICES



5815 Middlebrook Pike • rang ville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: IT Corporation

ATTN: Cliff Vaughan 312 Directors Drive Knoxville, TN 37923 DATE REPORTED:

June 10, 1986

PROJECT CODE:

ITEK 22457

ORDER NUMBER:

TN Contract FA-1353

PAGE_______ OF ______ 5__

Job #409374.01.71.89

Sample Description: Kennon Site, Field #99, Genesco Well #9, 5-31-86, 9:40

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

C omp ound	Concentration (ppb)	Compound	Concentration (ppb)
benzene	CM	1,1-dichloroethene	ИD
bromodichloromethane	СИ	trans-1,2-dichloroethene	2,000.
bromoform	СИ	1,2-dichloropropane	ND
bromomethane	GN	cis-1,3-dichloropropene	GИ
carbon tetrachloride	СИ	trans-1,3-dichloropropene	CM
chlorobenzene	ND	ethyl benzene	ND
chloroethane	1,200.	methylene chloride	. GM
2-chloroethylvinyl ether	GN	1,1,2,2-tetrachloroethane	ND
chloroform	D	tetrachloroethene	ND
chloromethane	ND	toluene	39,0 00.
dibromochloromethane	CM	1,1,1-trichloroethane	<1,000.
1,1-dichloroethane	1,600.	1,1,2-trichloroethane	GM
1,2-dichloroethane	<1,000.	trichloroethene	GN
- ,	, -	vinyl chloride	ND ND

Remarks: ND = Not detected.

<1,000. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)</p>

Copy to:

Ronnie Bowers

Tennessee Department of Health & Environment

Division of Solid Waste Management

701 Broadway Street, 4th Ficer Customs House

Nashville, TN 37219-5403

Swom to and subscribed before me this 10th day of June, 1986

My commission expires January 16, 1988

alyer of Marke

Laboratory Manager

Title

Notary Public



ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville Tennessee 37921 • 615 588 6401

CERTIFICATE OF ANALYSIS

TO: IT Corporation

ATTN: Cliff Vaughan 312 Directors Drive Knoxville, TN 37923 DATE REPORTED: PROJECT CODE:

ORDER NUMBER:

February 10, 1986

ITEK 21702

TN Contract FA-1353

Sample Description: Two (2) water samples and one (1) soil sample received

January 29, 1986

Concentration units are mg/liter (ppm) unless otherwise stated

PRIORITY POLLUTANT METALS

Kennon Site, 1-28-86 Field #1 Field #3, Seep Field #3, Seep (soil) 10:30 Hackett Spring (water) 10:30 9:15 (ug/gram, ppm) Antimony <0.001 <0.002* <0.05 <0.001 0.217 Arsenic 18. Beryllium <0.002 0.010 0.69 Cadmium <0.001 <0.001 <0.03 <0.01 Chromium 0.15 9.3 <0.002 0.088 6.5 Copper <0.01 0.12 7.6 Lead <0.001 <0.001 0.048 Mercury Nickel <0.01 <0.01 8.3 Selenium <0.001 <0.03* <0.3* <0.002 <0.002 < 0.1 Silver Thallium <0.02 <0.6 <0.02 30. Zinc <0.001 0.519 0.20 Cyanide <0.01 0.01

Copy to: Ronnie Bowers

فعد وورياء المائد وياسط فالمائون كالمائية المائية بقائدها أمائية المفاهلات فالمائدان أمده بالمدافة والمائة فالمائية أفامة المائية والمائية

Tennessee Department of Health & Environment

Division of Solid Waste Management

701 Broadway Street, 4th Floor Customs House

Nashville, TN: 37219-5403

Swom to and subscribed before me this 10th day of February, 1986

My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Director

Tille

^{*} Detection limits higher than normal due to sample matrix interferences.



ANALYTICAL **SERVICES**



5815 Middlebrook Pike . Knoxville, Tennessee 37921 . 615 588 6401

CERTIFICATE OF ANALYSIS

IT Corporation TO:

ATTN: Cliff Vaughan 312 Directors Drive Knoxville, TN 37923 DATE REPORTED:

February 6, 1986 ITEK 21683

PROJECT CODE: ORDER NUMBER:

TN Contract FA- 1353

Sample Description:

Two (2) soil samples and one (1) waste sample received

January 24, 1986

Concentration units are µg/gram (ppm)

PRIORITY POLLUTANT METALS

	Grab Waste Pit B 1-22-86, 11:30	Pit A 1-22-85, 1:30	Pit B 1-22-85, 11:30
Antimony	0.10	<0.1	<0.1
Arsenic	<0.1	9.0	9.0
Beryllium	<0.1	1.2	1.1
Cadmium	0.25	<0.1	<0.1
Chromium	14.	14.	14.
Copper	0.80	7.5	4.4
Lead	1.2	8.0	8.2
Mercury.	<0.1	<0.1	0.12
Nickel	<0.7	11.	7.3
Selenium	<0.8	<1.	<1.
Silver	<0.1	<0.2	<0.2
Thallium	<1.	<2.	<2.
Zinc	560.	33.	37.
Total Cyanide	0.07	0.10	0.26

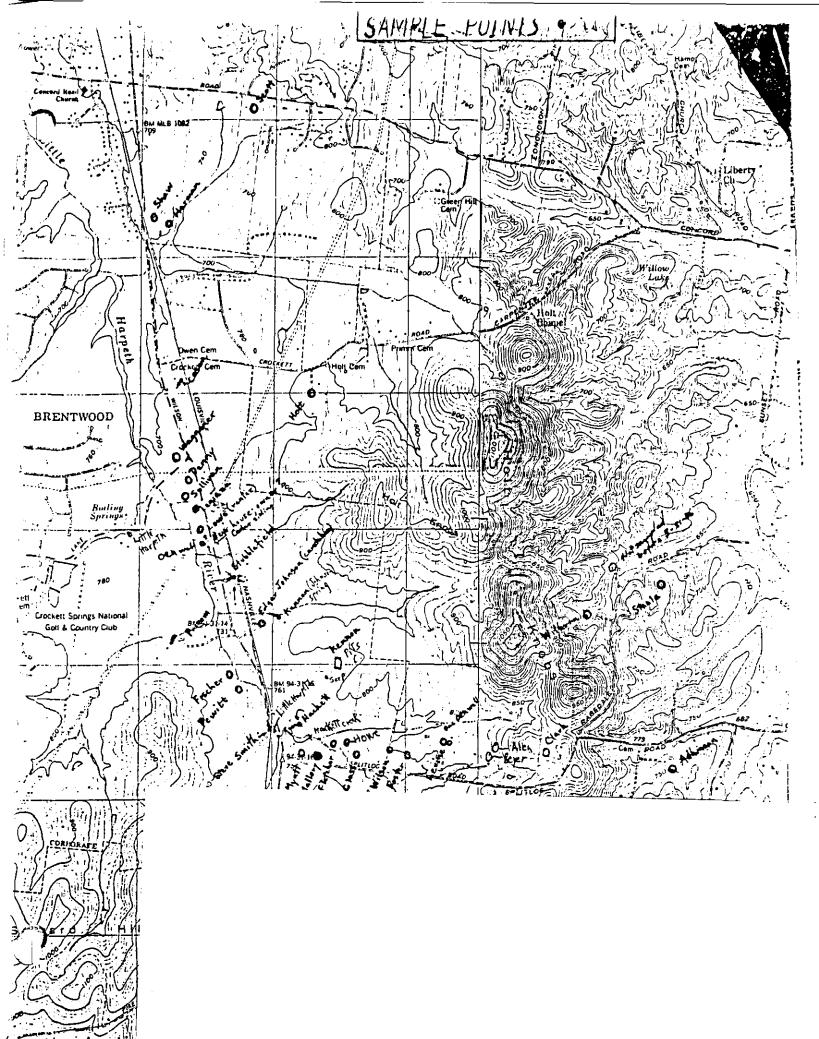
6th Swom to and subscribed before me this February, 1986 February, January My commission expires

Notary Public

Laboratory Manager

Title





GERAGHTY & MILLER, INC.

APPENDIX A

RESULTS OF SAMPLE ANALYSES OF INSPECTION PITS AND ON-SITE SEEP, JANUARY 1986

Includes samples taken by lowery description and those taken by TDHE on Jan 21, 22, 23.

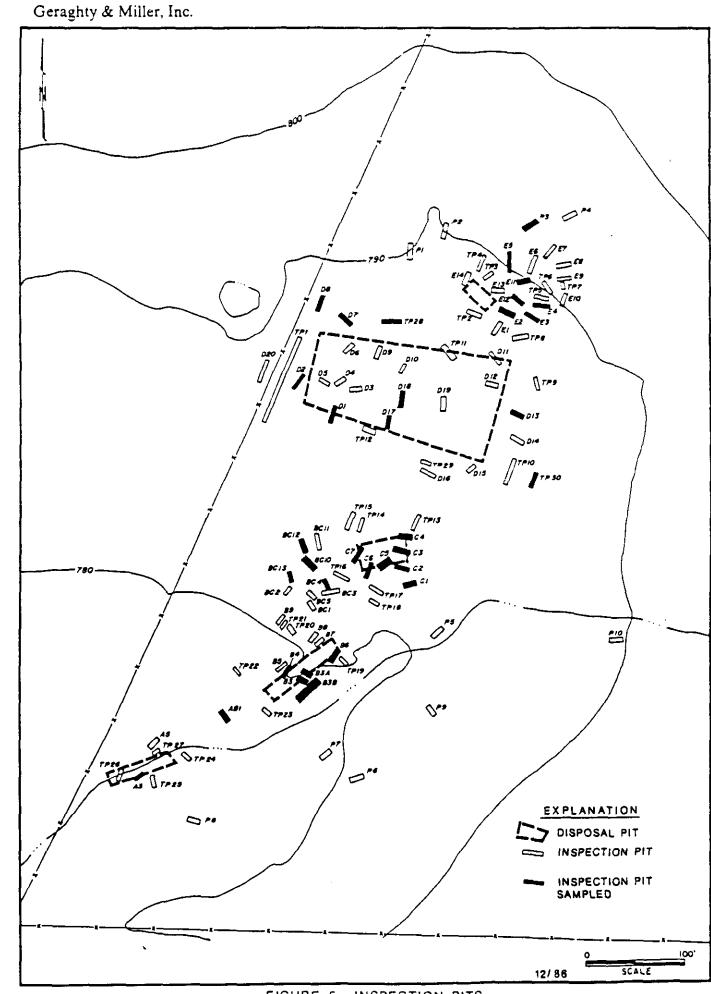


FIGURE 5. INSPECTION PITS

SOIL, SLUDGE AND SEMI SOLID WASTE

SAMPLING POINT SAMPLE TYPE LABORATORY SAMPLED BY DATE SAMPLED	PIT 8 SOIL IT TDHE 22-Jan-86	PIT B SOIL IT TOHE 22-Jan-86	PIT B WASTE IT TDHE 22-Jan-86	PIT 3 WASTE IT TDHE 22-Jan-86	PIT D SOIL IT TDHE 22-Jan-86	PIT A SOIL IT TDHE 22-Jan-86	PIT A SOIL IT TOHE 22-Jan-86	KNN SEEP SOIL IT TEHE 28-Jan-86
ACIB EXTRACTABLE ORGANICS (PPM)								
2-CHLOROPHENOL	ND		D		ND	ND	DM	ND
2.4-0ICHLCROPHENOL	פא		DA		NO	ND	ND	ND
2,4-0IMETHYLPHENGL	МÐ		ND		GM	ND	ND	ND
4.5-DINITRO-3-CRESSL	ND		DA.		DM	NB	нŪ	В
2.4-DINITASPHENOL	ND		פא		ND	ND	NÐ	ND
2-NITROPHENOL	מא		ND		NO	ND	מא	מא
4-NITROPHENOL	· ND		ND		ND	ND	ND	ND
P-GHLORO-M-CRESOL	ND		ND		DM	ND	DM	םא
PENTACHLOROPHENOL	HD		D		ND	ND	ND	מא
PHENOL	ND		ND		מא	OK	ND	ND
2.4.5-TRICHLOROPHENOL	NB		םא		ND	ND	ND	ND

SOIL, SLUDGE AND) SEMI	SULID	MASIE
------------------	--------	-------	-------

						•		
SAMPLING POINT	PIT B	PIT B	PIT 3	PIT B	PIT D	PIT A	PIT A	KNN SEEP
SAMPLE TYPE	SBIL	SOIL	WASTE	WASTE	SOIL	SOIL	SOIL	SOIL
LABORATORY	IT	11	IT.	IT	IT	IŢ	IT	11
SAMPLED BY	TOHE	TDHE	TDHE	TDHE	TDHE	TDHE	TDHE	TDHE
DATE SAMPLED	22-Jan-86	22-Jan-96	22-Jan -86	22-Jan-86	22-Jan-86	22-Jan-96	22-Jan-56	28-Jan-06
BASE NEUTRAL EXTRACTABLES (CONT.)								
ENDRIN ALDEHYDE	NO		ND		ND	ND	ND	ND
FLUGRANTHENE	HD		DK.		NĐ	ND	ND	MD
FLUCRENE	ND		ND		ND	ND	ND	ND
HEPTACHLOR	+D		ND		ND	ND	ND	פא
HEPTACHLOR EPOXIDE	NB		ND		СM	HD	NO	ak
HEXACHLOROBENZENE	MD		HD		ND	ND	ND	פא
HEXACHLOROCYCLOPENTADIENE	םא		ND.		ND	ND	ND	OM
HEXACHLOROBUTADIENE	DK		ND		ND	מא	DK	ND
HEXACHLORGETHANE	פא		ND		פא	ND	ND	D
INDENO(1,2,3-cd)PYRENE	OK		OR		ND	ND.	HD	ND
ISOPHORONE	ND		ND		ND	סא	מא	ND
NAPTHALENE	(1,00		110.000		ND	ND.	ND	ND
NITROSENZENE	ND		ND		40	ND	ND	ND
N-MITROSODIMETHYLAMINE	ND		NO.		ND	ND	ND	ND
N-MITROSOBIAHENYLAMINE	HD		(100.0		ND	ND	ND	ND
N-MITROSODI-M-PROPYLAMINE	ND		HĐ		NO	40	40	ND.
PCB-1016	NÐ		ND		ND	NO	ND	NO
PC9-1221	ND		₹4.00		ND	ND	ND	MD
PCB-1232	ND		ND		ND	ND	ŒN	ND
PC3-1242	ND		ND		ND	סא	ND	ND
PCB-1248	ND		ND		ND	ND	ND	ND
PC3-1254	ND		HD.		ND	ND	פא	PD
PCB-1260	ND		ND		ND	ND	מא	ND
PHENANTHRENE	ND		ND		ND	DM	ND	МD
PYRENE	םא		ND		ND	ND	ND	ND
TOXAPHENE	DM		ND		ND	NO	DN	DM
1.2,4TRICHLOROBENZENE	ИВ		ND		ND	ND	ОМ	ΝО
HETHOXYCHLOR	ND		ND		ND	DM	ND	ND

SOIL, SLUDGE AND SENI SOLID WASTE

<u>____</u>

ENDOSULFAN SULFATE ENDRIN	BETA- ENDOSULFAN	ALPHA-ENDOSULFAN	DI-N-OCTYLPHTHALATE	2,6-DINITROTOLUENE	2,4-DINITROTOLUENE	DIMETHYL PHTHALATE	DIETHYL PHTHALATE	DIELDRIN	3,3'-DICHLOROBENZIDINE	1,4-DICHLOROBENZENE	1.3-DICHLOROBENZENE	1,2-DICHLOROBENZENE	DI-N-BUTYLPHTHALATE	DIBENZO(a,h)ANTHRACENE	4,4,-001	4.4905	4.4000	CHRYSENE	4-CHCOROPHENYL PHENYL DITHER	1-CHLORONAPTHALENE	CHLORODANE	BUTLY BENZYLPHIHALAIE	4-BROMOPHENYL PHENYL ETHER	BIS(2-CHLOROISOPROPYL)ETHER	BIB(CHCGROMETHYC) ETHER	THE CHANGE OF TH	man (Albarrana) (A	BIS (2-ORLOBORTHYL) ETHER			667A-8KC	さにできる上の主の	BENZO(ghi)PERYLENE	BENZG(a) PYRENE	SENZO(K) FLUORATHENE	SENZO(b) FILUDRATHENE	SENIO(a) ANTERACENE	PLORIN	というというできます。	ACENAPITHYLENE	ACENAPHTHENE	BASE/NEUTRAL EXTRACTABLES (PPM)	DATE SAMPLED	SAMPLED BY	LABORATORY	SAMPLE TYPE	SAMPLING POINT	
25	3	3	8	NG.	×	8	(1.00	S	8	æ	80	8	1.000	Ü	3	Š	3	Š	2	ð	NO	8	35	a	8	4.500	6	8	3	6	dx	3	20	8	35	1	8	8	ž	*	8		22-jan-86 22-jan-86		11 11		PIT B PIT B	
⟨3.00	8	8	80	S	NO	NO.	(100.0	NO	æ	N	NO.	85	<100.0	ND	8	3	20	NO	8	*5	X G	NO NO	Š	GN	XD.	000 010	E i	ĕ	2 5	3	6	ON	ž	₹6	ð		æ	8	š	3	26		-86 22-Jan-86 22-Jan-86		11 11		PIT B PIT B	
8	36	8	85	N	3	8	No.	ND.	N	X)	25	N _O	¥D	8	25	3	8	25	M O	GN	36	*6	20	ND	מא	8	ð	22	ž	AD.	3	ND	3	×	S		ð	*5	3	NO.	25		22-Jan-86	景			PIT 0 PIT 4	
8	Š	8	8	8	8	8	3	8	3	8	3	S	8	8	3	8	3	3	3	3	8	8	3	8	AĐ	3	8	ð	35	š	3	8	₹	2	3		d G	풉	3	8	XD.		22-Jan-86 22-Jan-86		=	SOIL	PIT A	
8	8	3	3	8	5	8	3	8	중	8	8	8		€	Š	8	3	8	8	\$	š	3	S	8		.: 0	8	3	3	3	E	3	ä	85	8		8	3	8	3	8		1-36 <u>[</u> 3-Jan-d6			F	Ω.	
8	3	3	3	3	3	3	3	3	3	3	8	3	(1.00	耆	8	3	3	Š	Š	z	ž	8	ď	3	舌	00.13	5	8	3	3	5	3	S	3	3		3	8	8	3	3		o di				SEEP .	

SOIL, SLUDGE AND SEMI SOLID WASTE

SAMPLING POINT SAMPLE TYPE LABORATORY SAMPLED BY DATE SAMPLED	PIT B SOIL IT TDHE 22-Jan-Bá	PIT B SOIL IT TOHE 22-Jan-86	PIT B WASTE IT TOHE 22-Jan-86	PIT B WASTE IT TDHE 22-Jan-86	PIT D SOIL IT TDHE 22-Jan-86	PIT A SOIL IT TDHE 22-Jan-86	PIT A SOIL IT TDHE 22-Jan-86	KNN SEEP SOIL IT TUHE 28-Jan-86
METALS (PPM)								
ANTIMONY		<0.10		0.190			(0.10	(0.050
ARSENIC	<0.001	9.000	<0.001	<0.10		0.002	9.000	19.000
SARIUM	0.120		0.080			0.140		
BERYLLIUM		1.100		(0.10			1.200	0.490
CADMIUM	<0.001	<0.10	0.005	0.250		0.003	<0.10	<0.030
CHROMIUM	₹0.010	14.000	<0.010	14.000		(0.010	14.000	9.300
COPPER		4.400		0.300			7.500	6.500
LEAD	0.120	8.200	<0.010	1.200		<0.010	9.000	7.400
MERCURY	0.001	0.120	0.001	<0.10		0.002	<0.10	0.048
NICKEL		7.300		<0.70			11.000	8.300
SELENIUM	<0.001	<1.00	₹0.001	<0.80		<0.001	<1.00	<0.30
SILVER	<0.002	<0.20	₹0.002	<0.10		<0.002		<0.10
THALLIUM		<2.00		₹1.00			<2.00	(0.50
ZINC		37.000		540.000			33.000	30.000
CYANIDE		0.250		0.070			0.250	0.200

SDIL, SLUDGE AND SEMI SOLID WASTE

SAMPLING POINT	PIT B	E TIG	PIT B	PIT D	PIT A	PIT A		ΕP
SAMPLE TYPE	SOIL	WASTE	HASTE	SOIL	SOIL	SOIL	SOIL	
LABORATORY	IT	11	II	IT	IT	IT	IT	
SAMPLED BY	TDHE	TOHE	TDHE	TOHE	TDHE	TDHE	TOHE	
DATE SAMPLED	12-Jan-86	22-Jan-95	22-Jan-86	22-Jan-86	22-Jan-36	22-Jan-86	28-Jan-8	6
VOLATILE GREANICS, PARTS PER MILL	ion (PPM)							
1.1,1-TRICHLORGETHANE		<20000.0		0.430	D		N	D
1,1,2,2-TETRACHLOROETHANE		מא		HD	ND			(0
1,1.2-TRICHLORGETHANE		QH.		םא				D
1.1-DICHLORGETHANE		NO		0.340				Ø
1,1-DICHLOROETHYLENE		ND		0.025	ND		<0.01	0,
1,2-DICHLOROETHYLENE								
1,2-DICHLORDETHANE		ND		ND	ND		N	D
1.2-DICHLOROPROPANE		NO		ND	ND		H	(Ď
2-CHLOROETHYLVINYLETHER		ND		ND	ND		N	10
ACETONE		ND		NO	ND		N	ŧD
ACROLEIN		ND		ND	ND		N	ID.
ACRYLONITRILE		ND		מא	ND		N	Ð
SENZENE		ND		(0.010	DN		N	D
BROMODICHLOROMETHANE		G _K		Ωĸ	ND		N	ID
BROMOFORM		NΩ		ND	ND		N	10
BROMOMETHANE		Ūκ		ND.	ND			ŧD
CARSON TETRACHLORIDE		ND		NO.	_		N	- (0
CHLCROBENZENE		DI		פא				٠D
CHLOROETHANE		ND		0.085				(0
CHLOROFORM		ND.		ND				Ð
CHLOROMETHANE		מא		ND	ND		N	Ø
DICHLORODIFLUROMETHANE								
DIBROMOCHEGROMETHANE		ND		מא	ND		N	D
ETHYL ACETATE		:10		17.5			.,	-
ETHYL BENZENE		MD		ND	ND		N	(D
HEXANE		¥1,		1111	114		,,	
METHYLENE CHLORIDE		(20000.0		ND	0.090		0.02	7
METHYL ETHYL KETONE		.20000.0		,10	0.070		V.VL	• •
METHYL BROWIDE								
METHYL CHLORIDE								
TETRACHLOROETHYLENE		<20000.0		<0.010	<0.010		N	Ð
TOLUENE		570000.000		(0.010				(D
TRANS-1,2-DICHLOROETHYLENE		ND		0.730			⟨0.01	
TRANS-1, 2-DICHLOROMETHYLENE		AID.		A*190	HP		/4.41	
TRANS-1,3-DICHLOROPROPENE		ND		ND	ND		N	IĎ
TRICHLORGETHYLENE		√20000.0		0.100				10
VINYL CHLORIDE		\20000.0		0.100 ND				ID
_		טה פא		טה מא				10
cis-1,3-DICHLOROPROPENE XYLENE	•	טא		NU	AU		N	•
n 66146								

SOIL, SLUDGE AND SEMI SOLID WASTE

SAMPLING POINT SAMPLE TYPE LABORATORY SAMPLED BY DATE SAMPLED	SA	EA	SA	6A	āA	BC-4 SLUDGE SP ASSAYS GA IJ-Jan-36	6A	C-5 SLUDGE SP ASSAYS GA 23-Jan-36	PIT B SOIL IT TOHE 22-Jan-36
VOLATILE ORGANICS, PARTS PER MI	LLION (PPH)								
1,1,1-TRICHLOROETHANE	(1.0	842.000	<1.0	35.000	5950.000	(1.0	4866.000	(1.9	140.000
1.1.2.2-TETRACHLORGETHANE	₹1.0	<1.0	<1.0	<1.0	(1.0	<1.0	(1.0		ND
1,1,2-TRICHLOROETHANE	(1.0		⟨1.0			(1.0	(1.0		DK
1,1-01CHLGROETHANE	<1.0		(1.0			(1.0			
1,1-DICHLORGETHYLENE	(1.0		₹1.0		₹1.0	<1.0	⟨1.9		
1,2-01CHLOROETHYLENE	₹1.0		(1.0			(1.0	(1.0		
1,2-DICHLOROETHANE	(1.0		<1.0	(1.0	<1.0	<1.0	(1.0		
1.2-DICHLOROPROPANE	(1.0		<1.0			⟨1.0			
2-CHLOROETHYLVINYLETHER	<1.0		(1.0	<1.0	(1.0	(1.0	<1.0	<1.0	ND
ACETONE	<1.0	348.000	598.000	₹1.0	955.000	4.500	0.1>	⟨1.0	סא
ACROLEIN	₹1.0	<1.0	(1.0	₹1.0	(1.0	⟨1.0	(1.0	₹1.0	ND
ACRYLONITRILE	<1.0	(1.3	(1.0			(1.0	(1.0		
BENZENE	<1.0	(1.0	(1.0	<1.0	⟨1.9	⟨1.0	⟨1.0	6522.000	1.000
SROMODICHLOROMETHANE									DM
BROMOFORM	(1.0	⟨1.0	⟨1.0	₹1.0	(1,0	(1.0	(1.0	₹1.0	ND
BROMOMETHANE									ND
CARBON TETRACHLORIDE	<1.0	41.0	<1.0	₹1.0	<1.0	(1.0	(1.0	(1.0	DM
CHLOROSENZENE	<1.0	<1.0	(1.0	<1.0	(1.0	₹1.0	<1.0	<1.0	0.530
CHLOROETHANE	⟨1.0	(1.0	(1.0	<1.0	(1.0	(1.0	<1.0	(1.0	ND
CHLORGFORM	(1.0	⟨1.0	(1.0	(1.9	(1.0	<1.0	(1.0	(1.0	<0.250
CHLCROMETHANE									HD
DICHLORODIFLUROMETHANE	<1.0	<1.0	(1.0	(1.0	₹1.0	₹1.0	<1.0	<1.0	
DIBROMOCHLOROMETHANE	(1.5	⟨1.0	<1.0	<1.0	<1.0	₹1.0	<1.0	<1.0	ND
ETHYL ACETATE	₹1.0	(1.0	₹1.0	<1.0	(1.0	(1.0	(1.0	₹1.0	
ETHYL BENZENE	₹1.0	(1.0	(1.0	(1.0	⟨1.0	(1.0	⟨1.0	⟨1.0	19.000
HEXANE	<1.0	120.000	(1.0	(1.0	(1.0	(1.0	(1.0	211772.000	
METHYLENE CHLORIDE	⟨1.0	(1.0	<1.0	(1.0	⟨1.0	(1.0	<1.0	<1.0	3.300
METHYL ETHYL KETONE	6.000	<1.0	187.000	169.000	<1.0	12.000	0.1>	1626.000	
METHYL BROWLDE	<1.0	<1.0	(1.0	<1.0	<1.0	<1.0	⟨1.0	(1.0	
METHYL CHLORIDE	<1.0	(1.0	(1.0	(1.0	(1.0	<1.0	(1.0	(1.0	,
TETRACHLORGETHYLENE	<1.0	848.000	340.000		3208.000	<1000	<1.0	<1.0	220.000
TOLUENE	10.000	4454.000	2710.000	602.00 0	12020.000	100.000	7070.000	460.000	
TRANS-1,2-DICHLOROETHYLENE TRANS-1,2-DICHLOROMETHYLENE									1.200
TRANS-1,3-DICHLOROPROPENE									ND
TRICHLORGETHYLENE	<1.0	(1.0	⟨1.0	⟨1.0	⟨1.0	<1.0	⟨1.0	⟨1.0	
VINYL CHLORIDE	⟨1.0	(1.0	(1.0	⟨1.0	(1.0	(1.0	(1.0	⟨1.0	ND.
cis-1,3-DICHLOROPROPENE XYLENE	1110	/110	11.0	/110	1110	/1.0	71.0	(110	NB

WATER AND LIQUID WASTE

SAMPLING POINT	PIT A	KNN SEEP
SAMPLE TYPE	WATER	HATER
LABORATORY	IT	IT
SAMPLED BY	TOHE	TOHE
DATE SAMPLED	22-Jan-86	29-Jan-86

ACID EXTRACTABLE BREAKICS (PPM)

4-CHLORO-3-METHYLPHENOL		
2-CHLOROPHENOL	ND	ND
2.4-DICHLOROPHENOL	HD	ND
2.4-0IMETHYLPHENOL	ND	NO
2-METHYL-4,6-BINITROPHENOL		
4.6-DINITRO-O-CRESOL	ND	NO
2.4-DINITROPHENOL	NO	NO
2-NITROPHENOL	ND .	NE
4-NITROPHENOL	OK	NO
P-CHLORO-M-CRESOL	DH	NE
PENTACHLOROPHENOL	MD	ND
PHENOL	40	NE
2,4,5-TRICHLOROPHENOL	40	ND

WATER AND LIQUID WASTE

ISOPHORONE

NAPTHALENE

PCB-1016

PC9-1221

PCB-1202

PCB-1242

PCB-1248

PCB-1254

PCB-1250

PYRENE

TOXAPHENE

PHENANTHRENE

METHOXYCHLOR

1,2,4,-TRICHLOROBENZENE

NITROBENZENE

N-MITROSODIMETHYLAMINE

N-MITROSODIPHENYLAMINE

N-NITROSODI-N-PROPYLAMINE

WHICH HAD CIRCID MHG:C		
SAMPLING POINT	PIT A	KNN SEEP
SAMPLE TYPE	WATER	WATER
LABORATORY	ΙĪ	IT
SAMPLED BY	TDHE	TDHE
DATE SAMPLED	22-Jan-85	28-Jan-86
BASE/NEUTRAL EXTRACTABL	SS (CONT.)	
BETA-ENDOSULFAN		QN
ENDOSULFAN SULFATE		DM
ENDRIN ALDEHYDE		ND
FLUORANTHENE	ND	ND
FLUORENE	ND	ND
HEPTACHLOR		DN
HEPTACHLOR EPOXIDE	ND	ND
HEXACHLOROBENZENE	ND	מא
HEXACHLOROBUTADIENE	פא	ND
HEXACHLOROCYCLOPENTADIE	NE NO	DH
HEXACHLOROETHANE	MD	ND
INDENO(1.2,3-cd)PYRENE	ND	ND

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MATER AND LIQUID WASTE

SAMPLE TYPE LABORATORY SAMPLED BY	IP-30 MATER SP ASSAYS SA 22-Jan-36	WATER IT TOHE	KNN SEEP WATER IT TDHE 28-Jan-86
VOLATILE ORGANICS, PARTS PER	HILLION (P	PH)	HILLION (PPH)
1,1,1-TRICHLORGETHAME		2.000	ND
1,1,2,2-TETRACHLOROETHANE	⟨0.010	NO	ND
1,1,2-TRICHLORDETHANE	<0.019		
1.1-DICHLOROETHANE	0.585	4.300	MD
1.1-0ICHLORGETHYLENE	0.033	0.290	ND
1,2-DICHLOROETHYLENE	1.950	ND	ND
1,2-DICHLORCETHANE	<0.010	1.200	(0.01
1,2-DICHLOROPROPANE		HD	מא
2-CHLOROETHYLVINYLETHER	(0.010	ND	פא
ACETONE	<0.1		
ACROLEIN	<0.1	ND	ND
ACRYLONITRILE	₹0.1	NO	NO
BENZENE	<0.010	0,200	ND
BROMODICHLORGMETHANE	(0,010	НD	ND
PROMOFORM	0.010	ND	ND
BROMOMETHANE		40	СИ
CARBON TETRACHLORIDE			
CHLORGBENZENE		0.014	
CHLOROETHANE		0.750	*****
	(0.010	40	ND
CHLOROMETHANE		MD	112
	₹0.010	ND.	פא
DICHLORODIFLUROMETHANE			
ETHYL ACETATE	(0.1		
ETHYL BENZENE		0.300	סא
HEXANE	⟨0,1		
METHYLENE CHLORIDE		0.340	ND
KETHYL ETHYL KETONE	(0.1		
METHYL BROWLDE	(0.010		
METHYL CHLORIDE	(0.010		
TETRACHLOROETHYLENE	(0.010	0.110	HD
TOLUENE	0.124	120.000	ND
TRANS-1,2-DICHLOROETHYLENE		3.00 0	0.011
TRANS-1,2-DICHLOROMETHYLENE			
TRANS-1,3-01CHLOROPROPENE	A A65	ND 3 075	MD
TRICHLOROETHYLENE	0.080	0.075	ND
VINYL CHLORIDE	(0.010	(0.010	NO
Cis-1,3-DICHLOROPROPENE		ND ND	ND
TRANS 1,3-DICHLOROPROPENE XYLENE		ND	ND

HATER AND LIQUID HASTE

ը, 9 0	\	5		010	201	62	288	020	301	10	50	002	0.2	9	0.010
KNN SEEP HATER II TDHE 29-Jan-86		\$	217.	Ö.	000	0	9	d	(0.001	9	0\$	0,0	0	0	9
PIT A WATER IT Toke 22-jan-36		0,001	0.012	<0,002	(0,001	(0.01	0.011	(0.01	(0,001	(0.01	\0.00.0	<0.002	<0.02	0.012	0.001
SAMPLING POINT SAMPLE TYPE LABORATORY SAMPLED BY DATE SAMPLED	(Edd.) STRIBE	AROXILAG	ARSENIC	BERYLLIUM	EDIRACIO	CHROMIUM	COPPER	LEAD	MERCURY	NICKEL	SELENIUM	SILVER	THALLTON	ZINC	CYANIDE

WATER AND LIQUID WASTE

SAMPLING POINT	PIT A	KNN SEEP
SAMPLE TYPE	HATER	MATER
LABORATORY	ΙŤ	IT
SAMPLED BY	TOHE	TDHE
DATE SAMPLED	22-Jan-96	
Ruie Auniee	<u> </u>	70 0 MI - 20
BASE/NEUTRAL EXTRACTABLES (P	PH)	
ACENAPHTHENE	NO	ND
ACENAPHTHYLENE	D	DK
ANTHRACENE	QN	פא
ALDRIN		ND
BENZIDINE		
BENZQ(a) ANTHRACENE	ND	ЖD
BENZO (6) FLUORATHENE		ND
BENZO(k) FLUORATHENE	ND	DM
BENZO (a) PYRENE		DM
BENZO(gni)PERYLENE	DM	DM
SENZYL BUTLY PHTHALATE	ND	ND.
ALPHA-BHC		ND
BETA-BHC		םא
GAMMA-BHC		ND
DELTA-SHC		ND
SIB(2-CHLORGETHYL)ETHER	dk.	פא
BIS(2-CHLORGETHOXY) METHANE	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	GK	GH
BIS(2-CHLOROISOPROPYL) ETHER	מא	ND.
BIS(CHLOROMETHYL) ETHER		
4-3RCMOPHENYL PHENYL ETHER	סא	OM
BUTYL BENZYLPHTHALATE		ND
CHLORODANE		סא
2-CHLORONAPTHALENE	MD	ND
4-CHLOROPHENYL PHENYL ETHER	GK	פא
CHRYSENE	ND	ND
4,4'-000		QN.
4,4'-ODE		ND
4,4'-DDT		ND
DIBENZO(a,h)ANTHRACENE	ND	ОМ
DI-N-BUTYLPHTHALATE	םא	ND
1,2-DICHLOROBENIENE	0.010	ND
1,3-DICHLOROBENZENE	פא	פֿא
1,4-DICHLOROBENZENE	ND	ND
3,3'-DICHLOROBENZIDINE	סא	NO
DIELORIN	/6.54	ND
DIETHYL PHTHALATE	⟨0.01	ND ND
DIMETHYL PHTHALATE	ND	ND ND
2,4-DINITROTOLUENE	ND	ND Mo
2,6-DINITROTOLUENE	ND ""	ND ND
DI-N-OCTYLPHTHALATE ALPHA-ENDOSULFAN	ND	DM
AM-ENVUSUEFAN		

	_		
MATER	AND)	D MASTE

JANUARY 1986

SAMPLING POINT	E-3	E-4	E-5	E-11	E-12	E-14	P-3	7 2 ~28	79-79
SAMPLE TYPE	MATER	MATER	WATER	MATER	WATER	WATER	HATER	WATER	WATER
LABORATORY	SP ASSAYS	SP ASSAYS	SP ASSAYS	EP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASEAYS	SP ASSAYS	SP ASSAYS
SAMPLED BY	3A	6A	3A	BA.	SA	3 A	SA	SA	3A
DATE SAMPLED	24-Jan-86	24-Jan-86	24-340-55	24-Jan-86	14-Jan-86	14-Jan-86	24-Jan-86	12-Jan-85	12-Jan-86
/GLATILE GREANICS, PARTS PER	MILLION (P	PH)							
1,1,1-TRICHLORDETHANE	0.130	0.009	0.010	0.313	3.100	0,044	(0.010	(0.010	0.571
1,1.2.2-TETRACHLORGETHANE	€9.010	<0.010	<0.010	<0.010	(0,010	(0.010	(0.010	(0.010	(0.010
1,1.0-TRICHLORDETHANE	<0.010			(0.11)			(0.010	<0.010	<0.010
1,1-01CHLCRCETHANE	0.240	0.275	.3.313	3.097		(0.010	(0.019	0.052	0.311
1,1-018HLORGETHYLENE	ე. ენე	(0,010	√0.010	<3.910).:47	40.010	<0.010	(0.010	<0.010
1.1-9ICHLGROETHYLENE	0.470	0.07á	10.010	1,029	0.=41	0.010	<0.313	-0.010	0.946
1,2-DICHLORGETHANE	<0.010	⟨0,010	<0.010	(0.010	0.373	(0.010	<0.010	<0.010	√0,010
1.2-31CHLOROPROPANE									
2-CHLGROETHYLVINYLETHER	(0.010	<0.010	<0.010		<0.010	<0.010	<0.010	<0.010	<0.010
ACETONE	0.010	0.110	<0.1	€0.1	10.000	⟨0,1	⟨0.:	<0.1	14.700
ACROLEIN	₹0.1	(0.1	<0.1	0.1	<0.1	(9.1	(0.1	(0.1	<0.1
40WAFCWILBIFE	; v. 1	\odot . 1	(0.1	·). 1	40.1	⟨◊.:	(0.1	⟨0.1	<0.1
BENZENE	⟨0, ⟩10	0.013	79.010	2,010	(0.010	(0.010	(0,010	(0.010	<0.010
SACHODICHLIROMETHANE	(V. (1)	0.010	₹9.518	(9,510	.0.919	0.910	<0.016	(0.013	<0.010
SROMOFIAM	16.010	<0.010	0.313	50.010	<0.010	40.010	70.010	(0.010	<0.010
BROMOMETHANE									
CARBON TETFACHLORIDE	-3.019	<0.010	ςθ. 313	<3.313	10,010	<0.310	<0.010	0.010	<0.010
CHLORGBENZENE	(0.010	(3.010	(0,019	(9.01)	(0,010	<0.010	<0.010	<0.010	<0.010
CHLORGETHANE	<0.010	<0.010	<0.010	<0.010	010.00	<0.010	(0.010	(0.010	<0.010
CHLORGEGRM	(0.010	₹0.310	√0,010	(0.510	(0,010	(0.010	<0.010	<0.010	<0.010
CHLOROMETHANE									
CIERCHOCHLEROMETHANE	.0.010	<0.010	(0,510	k0.010	40.010	<0.010	<0.010	<0.010	<0.310
DICHLGRODIFLURGMETHANE	.0.010	70.010	(0,010	(0.010	<0.010	<0.010	₹0.010	<0.010	<0.010
ETHYL ACETATE	<0.1	O.:	(0.1	9.1	(0.1	<0.1	<0.1	<0.1	20.000
ETHYL BENZENE	<0.010	<0.610	<0.010	(0.010	(0.010	(0.010	(0.610	<0.010	
HEXANE	<0.1	<0.1	(0.1	<0.1	3,250	(0.1	⟨0.1		(0.1
HETHYLENE CHLORIDE	0,170	<0.010	₹0.010	0.117	0.370	<0.010	0.029		5.520
METHYL ETHYL KETONE	1.350	0.128	<0.1	<0.1	18.700	<0.1	<0.1	⟨0.1	7.740
METHYL BROWIDE	<0.010	<0.010	<0.010	<0.010	<0.010	₹0.010	<0.010	<0.010	<0.010
METHYL CHLORIDE	<0.010	<0.010	<0.010	(0.010	<0.010	<0.010	⟨0.010	₹0.010	<0.010
TETRACHLORGETHYLENE	(0.010	<0.010	⟨0.010	(0.010	<0.010		<0.010	<0.010	(0.010
TOLUENE	12.890	0.145	<0.010	(0.010	21.500	0,019	⟨0,010	₹0.010	2.611
TRANS-1,2-DICHLOROETHYLENE									
TRANS-1,2-DICHLOROMETHYLENE									
TRANS-1,3-DICHLOROPROPENE									
TRICHLOROETHYLENE	<0.010	<0.010	(0.010	<0.010	⟨0.010	(0.010	(0.010	<0.010	(0.010
VINYL CHLORIDE	<0.010	(0.010	<0.010	(0.010			(0.010		
cis-1,3-01CHLOROPROPENE									
TRANS 1,3-DICHLOROPROPENE									
YYLENE					0.308				

WATER AND LIQUID WASTE

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TRANS 1,3-DICHLOROPROPENE XYLENE	TRANS-1,2-01CHCURUETHYLENE TRANS-1,2-01CHCDROMETHYLENE TRANS-1,3-01CHCDROPROPENE TRICHCOROETHYLENE VINYL CHLORIDE VINYL CHLORIDE	HETHYL CHLORIDE TETRACHLOROETHYLENE TOLUENE	METHYLENE CHLORIDE METHYL STHYL KETONE METHYL BROWIDE	ETHYL SENZENE ETHYL SENZENE	DHEDROMETHANE DICHEDROM FFLUROMETHANE	CARBON TETRACHLERIDE CHLOROSENZENE CHLOROSETHANE CHLOROFORM	ACRYCONITRILE SENZENE SROMODIORLCROMETHANE SROMOFORM	1.2-DICHLOROPROPANE 2-CHLOROETHYLVINYLETHER ACETONE ACETONE ACETONE	1.1,1-TRICHLOROETHANE 1.1.2.2-TETRACHLOROETHANE 1.1.2-TRICHLOROETHANE 1.1-01CHLOROETHANE 1.1-01CHLOROETHYLENE 1.2-01CHLOROETHYLENE 1.2-01CHLOROETHYLENE 1.2-01CHLOROETHYLENE	SAMPLING POINT 0-2 0- SAMPLE TYPE WATER WATER WASSAYS SP SAMPLE TYPE SAMPLED 23-Jan-66 27 DATE SAMPLED 25-Jan-66 27 FOLATILE ORGANICS, PARTS PER MILLION (PPM)
	0.189	(0.010 (0.010 1.950	0.882 4.100	0.102 0.010	<0.010 <0.010	010.0) 010.0) 010.0)	65619. 01016. 28619 1165	0.010 0.370 0.3	0.010 0.010 0.010 0.024 0.024 0.010	D-2 D-5 D-7 D-8 D-10 D-16 D-17 D-18 E-2 WATER WATER WATER WATER WATER WATER WATER WATER WATER WATER WATER WATER SP ASSAYS SP ASSAYS SP ASSAYS SP ASSAYS SP ASSAYS SP ASSAYS SP ASSAYS SA GA GA GA GA GA GA GA GA 20-Jan-66 20-Jan-66 10-Jan-
	0.375	(0.010 (0.010 0.052		0.010 010.0> 1.0>	(0.010	(0.010 (0.010 (0.010	010.0) 010.0) 016.0) 110)	(0.010	0.10.0 0.00.0 0.00.0 0.00.0 0.00.0 0.00.0 0.00.0	HATER SP ASSAYS 23-Jan-36
1.550	<0.010 <0.010	<0.010 <0.010 <0.010 49.400	3,400 2776,000 (0,010	0.010 0.010 0.010	(0.010 (0.010	<0.010 <0.010 <0.010	010.60 010.00 010.00	0.010	23,400 (0.010 (0.010 (0.010 (0.010	HATEP ASSAYS S
	<0.010 <0.010	010.00	0.010	(0.010 (0.010	010.00	(0.010 (0.010 (0.010	010.00	<pre></pre>	010.00 010.00 010.00 010.00 010.00	TE ASSET TO SERVICE TO
	<0.010 <0.010	(0.010	010.00	01010) 1100	<0.010	010.05 010.05 010.05 010.65	616.00 910.00 616.00 11.00	(0.010	9.010 9.010 9.010 9.010 9.010 9.010	MA PATER PAT
	010.0) 010.0)	010.00	0.020 0.020 0.010	010.0)	010.00	0.010	01010 01010 01610) 110)	010.00 010.00	0.017 (0.010 (0.010 0.013 0.017 9.471	ATER P ASSAYS
	(0.010	0.010	0.044	61610>	01010	010.00 010.00 010.00	0.917 0.010 0.010 0.010	(0.010 (0.1 (0.1	0.229 0.010 0.010 0.017 0.047	HATER ASSAYS S
	<0.010 <0.010	0.010	0.056 0.056	01010	(0.010	01.010 01.010 01.010	(1918) 61(19) 61(19) 11(0)	(0.010	(0.010 (0.010 (0.010 0.020 0.044 0.044	HATER ASSETS SERVICES
	1.500	0.650 147.200	24.500 45.400	0.010 0.450	<0.010 <0.010	(0.010 (0.010 (0.010	0.1 1.480 (0.010	<0.010 51.700 <0.1	15.000 (0.010 (0.010 (0.400 (1.150	AATER ASSAYS

BYES AND LIBBID WASTE

JANUARY 1986

 9C-10
 8C-12
 BC-13
 C-1
 C-2
 C-4
 C-6
 C-7
 D-1

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 SAMPLING POINT SAMPLED TYPE LABORATORY SAMPLED BY DATE SAMPLED

VOLATILE DRSANICS, PARTS PER MILLION (PPM)

1.1.1-TRICH CROEFRANE	0.550	1.400	8.730 130	72,300	101.190	35,900	59.300	130,000	0.422
1.1.C.C-TETAPORLOROETHANE	(0.010	<0.010	(0.010	(0.010	<0.010	<0.010	<0.010	(0.010	(0.010
TEACHING COUNTRY OF THE	(0.010	(0.010	<0.010	<0.010	<0.010	<0.010	(0.010	<0.010	(0.019
いるない。いのなりましいのという。	0,180	0.520	0.700	33,400	10.230	9,500	4, 500	4.200	0.168
TALL STORE DROPE THE PROPERTY OF	0.013	<0.010	0.100	0.:0	1.300	2.000	1.300	1,100	(0.010
A. D BICHLORGETHYLENE	0.930	7,100	1.300	0.500	20,900	(0.010	4.800	2,300	0.420
T. L. DI COLL COLC COLC COLC COLC COLC COLC COL	(0.010	(0,010	0.153	(0.010	2.195	(0,010	24,300	22,100	(0.010
1,2-DICHLOROPROPAME							ı		
2-CHLORDETHYLYINYLETHER	(0.010	(0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
אטנונואנ	<0°.	4.900	1.990	2.000	13,400	48,400	85,400	730,000	(0.1
ACROLDIA	0.1	(0.1	(0.1	0.1	60.1	(0.1	(0.1	(0.1	(0.1
ACRYLONITRILE	(0.1	(0.1	(0.1	<0.1	0)	(0.1	(0,1	÷::ទ	<0.1
BENZENE	(6.010	<0.016	0.095	010.00	006.0	(0.010	2.300	3, 400	(0.010
BROKODIONIONOKE	(0.010	40.010	<0.010	(0.010	(0.010	(0,010	(0.010	<0.010	<0.010
5R0R0F09#	<0.010	0.010	0.019	0,019	(0.010	(0.010)	(0.010	(0.019	(0.010
山木のボージをつかっている。									
CARGO TOTAL	(0.010	<0.010	<0.010	(0.010	(0.010	(0.010	(0.010	<0.010	(0.010
CHLOROBENZENE	<0.010	010.0>	(0.010	<0.010	(0,010	(0.010	<0.010	(0.019	(0.010
CHLDROETHANE	<0.010	<0.010	<0.010	(0.010	<0.010	<0.010	(0.010	<0.010	<0.010
CHLOROFORM	<0.010	<0.010	<0.010	(0.019	<0.010	<0.010	(0.010	<0.010	(0.010
CHLOROYETHARE									
DIBROMOCHLOROMETHANE	(0.010	010.03	<0.010	<0.010	<0.010	<0.010	<0.010	(0.010	(0.010
DICHORDIFICRORETHINE	010.0	010.00	<0.010	(0.010	(0.010	<0.010	(0.010	(0.010	(0.010
ETHYL ACETATE	÷.	5,900	1.300	22,100	4.500	17,700	21,300	52,000	(0,1
ETHYL BENZENE	(0.010	(0.010	<0.010	(0.010	(0.010	(0.010	(0.010	(0.010	<0.010
HEXANE	2.710	(0.1	1.800	17.200	12,900	18,000	2,300	4.100	(0.1
METHYLENE CHLORIDE	<0.010	1.000	0.110	5.200	9.500	2,400		43.800	0.032
METHYL ETHYL KETONE	(0.1	1.000	3.400	21.600	55,200	78.700		2056.000	<0.1
METHYL BROMIDE	(0.010	<0.010	(0.010	<0.010	(0.010	<0.010		(0.010	(0.010
METHYL CHLORIDE	(0.010	<0.010	(0.010	<0.010	<0.010	<0.010		(0.010	(0.010
TETRACHLOROETHYLENE	0.440	<0.010	1.600	11.500	12,300	5.700	5.200	4.600	(0.010
TOLUENE	4,200	13,900	24.200	268.500	462.800	97,000		534.000	0.079
IMANS-1,2-DICHLORGETHYLENE TRANS-1,2-DICHLOROMETHYLENE TRANG 1,7 DICHLOROMETHYLENE									
INMAG-1, 5-01CHLOROPROPERE									
INTERLOROETHYLENE	0.050	(0.010	0.230	44.200	7.400	2,200	4.200	(0.010	0.302
Vint CHLORIDE	(0.010	<0.010	<0.010	(0.010	(0.010	(0.010	<0.010	(0.010	(0.010
TRANS 1,3-DICHLOROPROPENE TRANS 1,3-DICHLOROPROPENE									
IYLENE	0.810		2,400	900.9	9.000	5.200	3.520	3.220	

COTAR	AND	1	201115	MASTE
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SAMPLING POINT

JANUARY 1986

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BC-4

90-10

BC-10

SHRELIAD FOIAI	F11 H3	HD-1	5-3	.a=3#	5-55 ·	3-7	DL-7	25-10	56-10
SAMPLE TYPE	WATER	WATER		LIR WASTE			WATER	WATER	WATER
LABORATORY	SP ASSAYS	SP ASSAYS	SP ASSAYS						
SAMPLED BY	SA	SA	SA	8A	SA	8A	3A	3A	SA
DATE SAMPLED	22-Jan-96	22-Jan-86	22-Jan-86	22-Jan-85	22-Jan-86	22-Jan-36	23-Jan-86	23-Jan-86	23-Јал-86
VOLATILE DREAMICS, PARTS PER	HILLION (P)	PH)							
1.1.1-TRICHLORDETHANE	5.100	26.400	₹0.010	318.400	59.300	14.500	129.000	1.550	0.550
1,1,2,2-TETRACHLERGETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	⟨0.010
:,1.2-TRICHLORGETHANE	<0.010	<0.010	<0.010	(0.010	(0.010	(0.310	(0.010	<0.010	(0.010
1,1-DICHLORGETHANE	7.100	5.000	<0.010	(0.010	4.200	3.000	280.000	1.400	ე.:30
1,1-DICHLORGETHYLENE	0.300	0.422	<0.010	⟨0.010	0.550	0.400	1.000	0.045	0.013
1.2-DICHLOROETHYLENE	á.400								
1.2-DICHLORGETHANE	<0.010	<0.010	<0.010						
1.2-DICHLOROPROPANE									
2-CHLCROETHYLVINYLETHER	<0.010	(0.010	₹0.010	<0.010	₹0.010	₹0.010	(0.010	<0.010	<0.010
ACETONE	29.400			4980.000					
ACROLEIN	₹0.1	⟨0.1							
ACRYLONITRILE	(9.1	<0.1							
BENZENE	0.800	0.505							
BRONODICHLOROMET FANE	(0.010								
PROMOFORM	(0.010	(0.010							
BROMOMETHANE				*****		.,,	,		
SARBON TETRACHLORIDE	₹0.010	<0.010	k 0. 010	<0.010	<0.010	<0.010	(0.010	⟨0.010	(0.010
CHLOROBENZENE	(0.010								
CHLOROETHANE	(0.010								
CHLOROFORM	<0.610								
CHLOROMETHAME									
DIEROHOCHLOROMETHANE	(0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	₹0.010	⟨0,010
DICHLORODIFLUROMETHANE	₹0.010	<0.010			(0.010				<0.010
ETHYL ACETATE	7.000	23.500	<0.1	<0.1	⟨0.1				
ETHYL BENZENE	<0.010								
HEXANE	0.300	2.010	(0.1	⟨0.1	⟨0.1	<0.1			
METHYLENE CHLORIDE	1.200	9.600							
METHYL ETHYL KETONE	24.900	73.900		9285.000					
METHYL BROWLDE	<0.010	<0.010							
METHYL CHLORIDE	(0.010	<0.010	⟨0.010						
TETRACHLORDETHYLENE	<0.010	3.900		14911.000	4.000	0.012	3.300		0.440
TOLUENE	108.200	491,400		29434.000	657.100	221.200	277,600		4,200
TRANS-1,2-DICHLOROETHYLENE									
TRANS-1,2-DICHLOROMETHYLENE									
TRANS-1, J-DICHLOROPROPENE									
TRICHLOROETHYLENE	(0.010	1.100	₹0.010	⟨0.010	1.700	1.000	2.500	0.104	0.060
VINYL CHLORIDE	(0.010	(0.010							_
cis-1,3-DICHLOROPROPENE									
TRANS 1,3-DICHLOROPROPENE									
XYLENE	3.200	3.380		2.776	3.600	4,000	4.600	2.040	0.B10
					LID = LID	d I t			

9-3A

PIT A3 AB-1

SP ASSAY = SPECIALIZED ASSAYS, INC., NASHVILLE, TN IT = IT ANALYTICAL SERVICES, KNOXVILLE, TN

 $\mbox{\tt (X DENOTES NOT DETECTED IN THE SPECIALIZED ASSAYS ANALYSES, WHERE <math display="inline">\mbox{\tt X IS THE LEVEL OF DETECTION}$

ND DENOTES NOT DETECTED IN THE IT ANALYSES. < X DENOTES THAT THE CONSTITUENT WAS DETECTED BUT AT A LEVEL LESS THAN THE LEVEL OF QUANTIFICATION. WHERE X IS THE LEVEL OF QUANTIFICATION



FUMMARK OF WALCE, SOLL AND WATER ARACYTICAL REGULTS FOR GAMPLES OPTOINED DIRECTLY FROM INSPECTION PITS WITHIN DISPOSOL AREA KENNON PROPERTY

February 22, 23 and 24, 1986 Brentwood, Williamson County, Tennessee

FIELD NO.	DATE COLLECTED	TIME COLLECTED	PIT LOCATION	LAR I.D. NO.	TYPE OF SAMPLE	TOTAL CONC. OF VOL. CONSTITUENTS PPM	NO. OF VOLATILE CONSTITUENTS DETECTED	ARSENIC PPM	bbw CHKOWIAW	ppm LEAD
1	1/22/86	1015	A-3	281651	Soil	16.0	2	5.3	27.0	16.9
2	1/22/86	1015	A-3	281643	Water	194.4	12	(0.001	(0.005	(0.001
3	1/22/86	1025	B-3	281644	Liquid Waste	183	i	(0.001	0.03	0.01
4	1/22/86	1042	B-3A	281645	Liquid Waste	65, 464	7	(0.001	11.2	0.50
5	1/22/86	1040	B-3A	281652	Semi-Solid Waste	6,632	5	6.2	30.5	20.6
6	1/22/86	1043	8-39	281995	Soil	3, 825	4	4.0	22.8	11.7
7	1/22/86	1053	B-3B	281996	Soil/Sludge	861	4	7.8	22.5	12.2
8	1/22/86	1054	B-3B	281646	Liquid Waste	1,074.55	11	0.003	(0.005	(0.001
9	1/22/86	1325	B4	281547	Water	471.412	13	0.002	(0.005	0.002
10	1/22/86	1347	B- 6	281997	Semi-Solid Material	23, 134	4	0.90	17.2	11.9
11	1/22/86	1455	AB-1	281648	Water	737.847	14	(0.001	(0.005	(0.001
12	1/22/86	1504	16-53	281649	Water	52.199	8	(0.001	(0.005	(0.001
13	1/22/86	1512	TP-30	281650	Water	4.006	6	(0.001	(0.005	(0.001
14	1/22/86	1514	TP-28	281951	Water	0.052	1	(0.001	(0.005	(0.001
16	1/23/86	0835	BC-4	281952	Water	993.7	15	0.003	0.665	0.002
17	1/23/86	0837	BC-4	281998	Scil/Sludge	129.5	4	8.2	26.5	15.7
18	1/23/86	0850	C-1	281953	Water	511.2	13	(0.001	(0.005	(0.001
19	1/23/86	0905	0-2	281954	Water	728.595	15	(0.001	(0.0 05	(0.001
20	1/23/86	0925	C-3	281999	Semi-Solid	11,936	2	0.0 5	(0.02	1.0
A.					Waste		_			
21	1/23/86	0935	€-4	281955	Water	371.7	12	(0.001	(0.005	(0.001
22	1/23/86	0947	C-5	282000	Sludge	220,380	4	0.03	0.15	0.07
23	1/23/86	1005	C-6	281956	Water	925.32	15	0.002	(0.005	0.002
24	1/23/86	1030	C-7	281957	Water	3,591.32	14	0.002	(0.0 05	(0.001
25	1/23/86	1145	BC-10	281958	Water	1,042.132	15	0.004	(0.005	0.004
2€	1/23/86	1425	BC-13	281959	Water	48.088	15	(0.001	(0.005	(0.001
27	1/23/88	1428	PC-12	281960	Water	31.62	8	(0.001	(0.005	(0.001
28	1/23/86	1432	BC-10	281961	Water	9.943	9	(0.001	(0.005	(0.001
29	1/23/86	1436	D-16	281962	Water	1.154	5	(0.001	(0.005	(0.601
30	1/23/86	1439	D-13	281963	Water	1.259	4	(0.001	(0.005	(0.00)
31	1/23/86	1447	D-17	281964	Water	3.07	9	(0.001	(0.005	(0.001
32	1/23/86	1449	D-18	281965	Water	0.701	6	(0, 601	(0.005	(0.001
33	1/23/86	1451	D-7	281966	Water	2, 875. 4	8	(0.001	(0.605	(0.601
34	1/23/86	1454	D-1	281967	Water	1.453	6	(0.001	(0.005	(0.001
35	1/23/86	1455	D-1	281968	Water	1.675	5	(0.001	(0.005	(0.001
36	1/23/86	1456	D-5	281969	Water .	17.924	12	(0.001	(0.005	(0.001
37 30	1/23/86	1500	D-8	281970	Water	0.019	1	(0.001	(0.005	(0.001
38 70	1/24/86	1005	E-11	281971	Water	0.545	4	(0.001	(0.005	(0.001
39	1/24/86	1007	E-5	281972	Water	0.010	1 7	(0.001	(0.005	(0.001
40	1/24/86	1009	E-4	281973	Water	1.084	7	(0.001	(0.005	(0.001
41	1/24/86	1011	E-3	281974	Water	17.82	8	(0.001	(0.005	(0.001
42	1/24/86	1015	E-12	281975	Water	60.108	11	(0.001	(0.005	(0.001
, -	1/24/86	1018	E2	281976	Water	323, 93	14	(0.691	(0.005	(0.001
. = '	1/24/86	1021	P-3	281977	Water	0.029	1	(0.001	(0.005	0.002
45	1/24/86	1024	E-14	281978	Water	0.06 3	2	(0.001	(0.005	(0.001

NOTE: (1) (designates 'less than'.

⁽²⁾ There was no Field No. 15 collected.

KEE'S

The Condensed Chemical Dictionary

TENTH EDITION (1981)

Revised by

GESSNER G. HAWLEY

cars. to skin and eyest causes blistard.

Exists only at low tempera-F.p. -114°C; b.p. -20°C; ation at normal pressure to hexachlorobenzene. carbon tetrachloride vapor and 10°3 mm Hg. ion with carbon; forms phosoxygen.

ocene (ferrocenoyl dichlot. line solid; m.p. 93-95°C.

ohenyl)-1,3,5,-triazin-2-Cl₂
:ne solid; m.p. 159-160°C;

3. See aniline.

ine. See chlorovinyldi-

diphenylmethane. See toaniline).

henzoquinone (DDQ) (N): C(CN).

w-orange solid; m.p. 213-

exidizing agent for organic

See dichloroethyl ether. See dichloroethyl formal. mustard gas; dichloroethyl

: b.p. 228°C; f.p. 14°C; sp. 12°F (104°C).

hylene through sulfur chlocol and hydrogen chloride. containing excess sulfur as a

Vesicant war gas; causes adness! Can be decontaming bleaching powder. Vapor and can be absorbed through

Rail) Poison gas label. Not Air) Not acceptable.

(CICH2CH2)2SO2.

sta¹ 1, 179-181°C(14-15)
ibl icohol, chloroform,
ble in water.

rritant to eyes and skin.

2.2-dichloro-1,1-difluoroethyl methyl ether (methoxyflurane) HCCl₂CF₂OCH₃.

Properties: Clear, colorless liquid; fruity odor; b.p. 104.65°C; f.p. -35°C; sp. gr. 1.4223 (25°C); completely stable in the presence of alkali, air, light, or moisture. Slightly soluble in water. Combustible. Grade: N.D.

Use: Anesthetic.

dichlorodifluoromethane (difluorodichloromethane; fluorocarbon-12). CCl₂F₂.

Properties: Colorless, odorless, noncorrosive gas. B.p. -29.8°C; f.p. -158°C; critical pressure 43.2 atm. Insoluble in water; soluble in most organic solvents. Nonflammable.

Derivation: (a) Reaction of carbon tetrachloride and anhydrous hydrogen fluoride, in the presence of an antimony halide catalyst; (b) high temperature chlorination of vinylidene fluoride (vinylidene fluorides made by addition of hydrogen fluoride to acetylene). Grade: 99.9% min. purity.

Containers: Cylinders.

Hazard: Narcotic in high concentrations. Tolerance, 1000 ppm in air.

Uses: Refrigerant and air conditioner; plastics; blowing agent; low-temperature solvent; leak-detecting agent; freezing of foods by direct contact; chilling cocktail glasses.

Shipping regulations: (Rail, Air) Nonflammable Gas label.

See also chlorofluorocarbon.

1,3-dichloro-5,5-dimethylhydantoin (DDH) ClNCONClOC(CH₃)₂.

Properties: White powder with mild chlorine odor. M.p. approximately 130°C; sublimes about 100°C without decomposition. Contains approximately 36% active chlorine. Slightly soluble in water with gradual liberation of hypochlorous acid; soluble in benzene, chloroform, ethylene dichloride, alcohol. Combustible, with evolution of chlorine at 210°C. Derivation: Chlorination of dimethylhydantoin. Grades: Technical.

Hazard: Toxic by inhalation. Tolerance, 0.2 mg per cubic meter of air. Skin irritant,

Uses: Household laundry bleach; water treatment; mild chlorinating agent; pharmaceutical intermediate; catalyst.

dichlorodimethylsilane. See dimethyldichlorosilane.

dichlorodiphenyldichloroethane. See TDE.

dichlorodiphenyldichloroethylene. See DDE.

dichlorodiphenyltrichloroethane. See DDT.

1.1-dichloroethane. See ethylidene chloride.

1,2-dichloroethane. See ethylene dichloride.

dichloroether. See dichloroethyl ether.

dichloroethoxymethane. See dichloroethylformal.

1.2-dichloroethyl acetate CH1COOCHClCH2Cl.

Properties: Water-white liquid. Sp. gr. 1.296 (20°C); boiling range: 58-65°C (13 mm); f.p. < -32°C; refractive index 1.444 (20°C); b.p., dec. Flash point 307°F (152°C). Combustible. Miscible with alcohol and ethyl ether. Immiscible with water.

Hazard: Toxic by inhalation.

Use: Organic synthesis.

para-di(2-chloroethyl)aminophenylalamine. See melphalan.

dichloroethylarsine. See ethyldichloroarsine.

dichloroethyl carbonate (ClH2CCH2O)2CO.

Properties: Colorless liquid. Slowly hydrolyzed by alkalies. Volatile in steam. Sp. gr. 1.3506 (20°C); b.p. 240°C (partial decomposition). Insoluble in water.

Derivation: By heating ethylene chlorohydrin and trichloromethylchloroformate together (under reflux).

sym-dichloroethylene (1.2-dichloroethylene; acetylene dichloride). CIHC: CHCI. Exists as cis and trans isomers.

Properties: Colorless, low-boiling liquid. Pleasant odor. It decomposes slowly on exposure to air, light and moisture. Soluble in most organic solvents; slightly soluble in water. Trans-isomer: sp. gr. 1.257; b.p. 47-49°C. Cis-isomer: sp. gr. 1.282; b.p. 58-60°C. Flash point 39°F (3.9°C); f.p. -80°C.

Derivation: Two stereoisomeric compounds made by the partial chlorination of acetylene.

Grades: Technical; as cis, trans, and mixture of both. Containers: 300-, 550-lb drums.

Hazard: Moderately toxic by ingestion, inhalation and skin contact; irritant and narcotic in high concentrations. Tolerance, 200 ppm in air. Flammable, dangerous fire hazard.

Uses: General solvent for organic materials; dye extraction; perfumes; lacquers; thermoplastics; organic synthesis.

Shipping regulations: (Rail, Air) Flammable Liquid label.

sym-dichloroethyl ether (dichloroether; dichloroethyl oxide; 2,2'-dichlorodiethyl ether, bis(2-chloroethyl) ether) ClCH₂CH₂CH₂CH₂Cl.

Properties: Coloriess liquid. Odor like that of ethylene dichloride. B.p. 178.5°C; sp. gr. 1.2220 (20/20°C); wt/gal 10.21b (20°C); refractive index 1.457 (20°C); flash point (closed cup) 131°F (55°C); f.p. -51.8°C. Autoignition temp. 696°F (368°C). Miscible with most organic solvents; insoluble in water. Combustible.

Derivation: Chlorination of ethyl ether.

Grades: Technical.

Containers: Glass bottles; iron drums; tank cars.

Hazard: Toxic by inhalation and ingestion; absorbed by skin; strong irritant. Tolerance, 5 ppm in air. Moderate fire hazard.

Uses: General solvent; selective solvent for production of high-grade lubricating oils; textile scouring

Dangerous Properties of Industrial Materials

Sixth Edition

N. IRVING SAX

Assisted by:

Benjamin Feiner/Joseph J. Fitzgerald/Thomas J. Haley/Elizabeth K. Weisburger

SYNS: ACETYLEN ETHINE

ETHYNE

TOXICITY DATA: 1 ihl-mam LCLo: 500000 ppm/5M CODEN: AEPPAE 138,65,28

OSHA Standard: Air: CL 2500 ppm FEREAC 39,-22001,74. DOT: Flammable Gas, Label: Flammable Gas FEREAC 41,57018,76. Occupational Exposure to Acetylene recm std: Air: CL 2500 ppm NTIS**. Reported in EPA TSCA Inventory, 1980.

THR: When mixed with O₂ in proportions of 40% or more, acetylene acts as a narcotic and has been used in anesthesia. Acetylene acts as a simple asphyxiant by diluting the O₂ in the air to a level which will not support life. However, the presence of impurities in commercial acetylene may result in the production of symptoms before an asphyxiant contribution is reached. Thus: 10% in air — slight intox; 20% — staggering gait; 30% — general incoordination; 33% — unconsciousness in 7 min; up to 80% — complete anesthesia, increased blood pressure, narcosis and stimulated respiration.

Dizziness, headache, mild gastric symptoms, and (in high conc) semi-asphyxia and brief loss of consciousness have all been reported. In general industrial practice, however, acetylene does not constitute a serious hazard. See argon for discussion of simple asphyxiants.

Fire Hazard: Very dangerous, when exposed to heat, flame or oxidizers.

Spontaneous Heating: No.

Explosion Hazard: Mod when exposed to heat or flame or by spont chemical reaction. At high pressures and even moderate temperatures, and in the absence of air acetylene has been known to decomp explosively. Incompatible with copper, brass, copper salts, copper carbide, pyroforic Co, Hg, Hg salts, K, Ag and Ag salts, RbH, CsH, halogens, HNO₃, NaH, and halogens. Acetylene + halide + UV can explode. Molten K ignites in C₂H₂ and then explodes. C₂H₂ reacts vigorously with trifluoromethyl hypofluorite. With O₂, C₂H₂ can detonate very powerfully. See acetylides.

Disaster Hazard: Dangerous; when ignited it burns with an intensely hot flame; can react vigorously with oxidizing materials

To Fight Fire: CO₂, water spray, or dry chemical. Stop flow of gas.

For further information see Vol. 1, No. 2 of DPIM Report.

ACETYLENE CHLORIDE

mf: CHCCl; mw: 60.5

A gas. bp: -31°, vap. d: 2.0, mp: -126°.

SYN: CHLOROETHYNE

THR: Unk. Probably has anesthetic properties if inhaled. See also chlorinated HC, alighatic.

Fire Hazard: Dangerous, by spont chemical reaction. Spontaneous Heat: Spontaneously fiammable in air. Disaster Hazard: Dangerous: shock will explode it, when

heated to decomp it emits highly tox fumes of phosgene, can react vigorously with oxidizing materials.

ACETYLENEDICARBOXAMIDE

CAS RN: 543215 NIOSH #: AO 9900000 mf: C₄H₄N₂O₂; mw: 112.10

Produced by Str. Reticuli var. Aquamyceticus and is identical to Cellocidin

SYNS:

ACETYLENEDICARBOXYLIC ACID 2-BUTYNEDIAMIDE DIAMIDE CELLOCIDIN AQUAMYCIN LENAMYCIN

TOXICITY DATA: 3 CODEN: ipr-mus LD50:15 mg/kg ARZNAD 17,693,67 ivn-mus LD50:11 mg/kg 12VXA5 9,12,76

Reported in EPA TSCA Inventory, 1980.

THR: HIGH ivn, ipr.

Disaster Hazard: When heated to decomp it emits tox fumes of NO_r .

ACETYLENEDICARBOXYLIC ACID MONOPO-TASSIUM SALT

CAS RN: 928041 NIOSH #: AP 0700000 mf: C₄HO₄·K; mw: 152.15

SYN: MONOPOTASSIUM SALT OF ACETYLENEDICARBOXYLIC ACID

TOXICITY DATA: 3 CODEN:
orl-mus LD50:63 mg/kg
ipr-mus LD50:32 mg/kg
ivn-mus LD50:89 mg/kg
TXAPA9 17,733,70
ivn-mus LD50:89 mg/kg
TXAPA9 17,733,70

Reported in EPA TSCA Inventory, 1980. EPA TSCA 8E No. 12780263—File closed as of April, 1979.

THR: HIGH orl, ipr. ivn.

Disaster Hazard: When heated to decomp it emits acrid smoke and fumes, KO_x .

ACETYLENE DICHLORIDE

CAS RN: 540590 NIOSH =: KV 9360000 mf: C₂H₂Cl₂; mw: 96.94

SYNS:

1,2-DICHLOR-AETHEN (GERMAN)

1,2-DICHLORO-1,2-ETHYLENE

(FRENCH)

1,2-DICHLOROETHYLENE

NCI-C56031

TOXICITY DATA: 2 CODEN:
orl-rat LD50:770 mg/kg ARSIM* 20,10,66
ipr-mus LD50:2000 mg/kg JETOAS 7(4),247,74

Aquatic Toxicity Rating: TLm96:1000-100 ppm WQCHM* 3,-,74.

TLV: Air: 200 ppm DTLVS* 4,130.80. Toxicology Review: 27ZTAP 3.8.69. OSHA Standard: Air: TWA 200 ppm (SCP-H) FEREAC 39.23540,74. "NIOSH Manual of Analytical Methods" VOL 3 S110. Reported in EPA TSCA Inventory. 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FERREAC 45.13646.80.

THR: MOD orl ipr.

Disas tox

trans-

CAS I

Colorle p: 36°1 d: 1.27 d: 3.34

SYNS: TRANS-I,

ihl-hmn 1 10M:C ipr-rat LI ihl-mus L ipr-mus L ihl-cat LC Reporter

THR: H

sure to weakn promp may re Fire Haz or oxic Spontane Explosion posed t

orously
To Fight
ACETYL

Disaster 1

CAS RN: mf: C₂H₂E

Colorless t d: 2.9638

SYNS: MUTHMANN'S 1,1,2,2-TETRA (GERMAN) TETRABROMO 1,1,2,2-TETRA (ITALIAN)

TOXICITY
skn-rbt 500 m,
eye-rbt 100 m,
dnr-esc 10 uL.
skn-mus TDLc
1: NEO
ori-rbt LD50:2

TLV: Air: 1 TWA 1; ORM-A. I Manual of in EPA T: Disaster Hazard: When heated to decomp it emits highly tox fumes of Cl⁻.

trans-ACETYLENE DICHLORIDE

CAS RN: 156605

NIOSH #: KV 9400000

mf: C₂H₂Cl₂; mw: 96.94

Colorless liquid, pleasant odor. mp: -50°, bp: 48°, flash p: 36°F, autoign. temp.: 860°F, lel = 9.7%, uel = 12.8%, d: 1.2743 @ 25°/4°, vap. press: 400 mm @ 30.8°, vap. d: 3.34.

SYNS:

TRANS-1,2-DICHLOROETHYLENE

TOXICITY DATA:

3-2-1 CODEN:

ihl-hmn TCLo:4800 mg/m3/ 10M:CNS AHBAAM 116,131,36

ipr-rat LD50:7536 mg/kg ihl-mus LCLo:75000 mg/m3/2H TXCYAC 7(2),141,77 AHBAAM 116,131,36 TXCYAC 7(2),141,77

ipr-mus LD50:4019 mg/kg ihl-cat LCLo:43000 mg/m3/6H

AHBAAM 116,131,36

Reported in EPA TSCA Inventory, 1980.

THR: HIGH hmn chl (CNS). MOD ihl; LOW ipr. Exposure to high conc of vapor can cause nausea, vomiting, weakness, tremor and cramps. Recovery is usually prompt following removal from exposure. Dermatitis may result from de-fatting action on skin.

Fire Hazard: Dangerous when exposed to heat, flame or oxidizers.

Spontaneous Heating: No.

Explosion Hazard: Mod, in the form of vapor when exposed to flame.

Disaster Hazard: Dangerous; see chlorides; can react vigorously with oxidizing materials.

To Fight Fire: Water, foam; CO2, dry chemical.

ACETYLENE TETRABROMIDE

CAS RN: 79276

NIOSH =: KI 8225000

mf: C₂H₂Br₄; mw: 345.68

Colorless to yellow liquid. bp: 151° @ 54 mm, fp: -1° , d: 2.9638 @ $20^{\circ}/4^{\circ}$, autoign. temp.: $635^{\circ}F$.

SYNS:

MUTHMANN'S LIQUID
1,1,2,2-TETRABROMAETHAN
(GERMAN)
TETRABROMOACETYLENE

s-tetrabromoethane 1.1.2.2-tetrabromoethane 1.1.2.2-tetrabroomethaan (Dutch)

1,1,2,2-TETRABROMOETANO (ITALIAN)

TOXICITY DATA: 3 skn-rbt 500 mg/24H MOD eye-rbt 100 mg MLD dnr-esc 10 uL/disc skn-mus TDLo: 130 gm/kg 74W-

CODEN: AIHAAP 24.28,63 AIHAAP 24.28,63 MUREAV 41,61,76 JJINDS 62,1433,79

orl-ro: LD50:400 mg/kg

AMIHBC 2,401,50

TLV: Air: 1 ppm DTLVS* 4.7,80. OSHA Standard: Air: TWA 1 ppm (SCP-I) FEREAC 39.23540,74. DOT: ORM-A, Label: None FEREAC 41,57018,76. "NIOSH Manual of Analytical Methods" VOL 3 S117. Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Pre-

Immary Assessment Information Proposed Rule FER-REAC 45,13646,80. EPA TSCA 8E No. 10780254—Submission Received as of April, 1979.

THR: HIGH via orl and inhl. It is irr and narcotic.

An exper NEO, MUT data.

Fire Hazard: Low

To Fight Fire: Water foam, fog, CO₂, dry chemical. Disaster Hazard: Dangerous; when heated it emits highly tox fumes of carbonyl bromide.

ACETYLENE TETRACHLORIDE

CAS RN: 79345

NIOSH #: KI 8575000

mf: C₂H₂Cl₄; mw: 167.84

Heavy, colorless, mobile liquid, chloroform-like odor, mp: -43.8°, bp: 146.4°, d: 1.600 @ 20°/4°.

SYNS:

(GERMAN)

1,1,2,2-CZTEROCHLOROETAN 1,1,2,2-TETRACHLORETHANE (POLISH) (FRENCH) 1,1-DICHLORO-2,2-DICHLORO-SYM-TETRACHLOROFTHANE ETHANE 1,1,2,2-TETRACHLOROETHANE NCI-C03554 1.1.2.2-TETHACLOROGIANO 1,1,2,2-TETRACHLOORETHAAN (ITALIAN) (рится) TETRACHLORURE D'ACETYLENE 1,1,2,2-TETRACHLORAETHAN (FRENCH)

TOXICITY DATA:

dnr-esc 10 ul/plate

orl-rat TDLo:42 gm/kg/78W-1:ETA orl-mus TDLo:55 gm/kg/78W-

1: CAR
ori-mus TD:110 gm/kg/78W-1: CAR

orl-hmn TDLo:30 mg/kg:CNS ihl-hmn TCLo:1000 mg/m3/ 30M:CNS

ihl-rat LCLo: 1000 ppm/4H ihl-mus LCLo: 9000 mg/m3/40M ipr-mus LDLo: 300 mg/kg ori-dog LDLo: 300 mg/kg ivn-dog LDLo: 56 mg/kg ihl-cat LCLo: 19000 mg/m3/45M scu-rbt LDLo: 500 mg/kg CODEN:

EVHPAZ 21,79,77 NCITR* NCI-CG-TR-27,78 NCITR* NCI-CG-TR-

NCITR* NCI-CG-TR-27.78 PCOC** -.1110.66 AHBAAM 116,131,36

JIHTAB 31.343.49 AHBAAM 116,131,36 CBCCI* 4.378.52 AJHYA2 16,325.22 QJPPAL 7,205,34 AHBAAM 116,131,36 QJPPAL 7,205,34

Carcinogenic Determination: Animal positive IARC** 20.477,79. Toxicology Review: AIHAAP 40,A46,79; 27ZTAP 3,139,69. OSHA Standard: Air: TWA 5 ppm (skin) (SCP-I) FEREAC 39,23540,74. Occupational Exposure to 1,1.2,2-Tetrachloroethane recm std: Air: TWA 1 ppm NTIS**. NCI Carcinogenesis Bioassay Completed; Results positive: Mouse (NCITR* NCI-CG-TR-27,78). NCI Carcinogenesis Bioassay Completed; Results indefinite: Rat (NCITR* NCI-CG-TR-27,78). "NIOSH Manual of Analytical Methods" VOL 2 S124. NIOSH Current Intelligence Bulletin 27, 1978. Reported in EPA TSCA Inventory, 1980.

THR HIGH via oral and inhal routes; MOD via dermal route. This is generally considered the most toxic of the common chlorinated HC. It has a fairly strong irritant action on mu mem of the eyes and upper respiratory tract; a conc of 3 ppm produces a detectable odor, thus an initial warning effect. Its narcotic action is stronger than that of chloroform, but because of

944 DICHLORODIPROPYLSTANNANE

DICHLORODIPROPYLSTANNANE

CAS RN: 867367 NIOSH #: WH 7255000 mf: C₆H₁₄Cl₂Sn; mw: 275.79

Colorless crystals. Sol in organic solvents, mp. 81°.

DICHLORODIPROPYLTIN DIPROPYLTIN CHLORIDE DI-N-PROPYLTIN DICHLORIDE DIPROPYLTIN DICHLORIDE

TOXICITY DATA: orl-rat LDLo:160 mg/kg

CODEN: 3 BJIMAG 15,15,58

OSHA Standard: Air: TWA 100 ug(Sn)/m3 (skin) (SCP-X) FEREAC 39,23540,74. Occupational Exposure to Organotin Compounds recm std: Air: TWA 0.1 mg(Sn)/m3 NTIS**

THR: HIGH orl. See also tin compounds and chlorides. Disaster Hazard: When heated to decomp it emits tox fumes of Cl.

1,4-DICHLORO-2,3-EPOXYBUTANE

CAS RN: 3583479

NIOSH #: EJ 8050000

mf: C₄H₆Cl₂O; mw: 141.00

SYN: BUTANE, 1.4-DICHEORO-2,3-FPOXY

TOXICITY DATA: 2 CODEN: mmo-kip 5 mmol/L MUREAV 89,269,81 skn-rbt 10 mg/24H open MLD AIHAAP 23.95.62 ARTODN 41,249,79 mma-sat 1 mmol/L orl-rat LDLo:710 mg/kg AIHAAP 23,95,62 skn-rbt LDLo:2830 mg/kg ATHAAP 23,95,62

THR: An irr in rbt skn. MUT data. MOD via oral, inhal and dermal routes.

Disaster Hazard: Dangerous; see chlorides.

DICHLOROETHANE

CAS RN: 1300216 NIOSH =: KH 9800000 mf: C₂H₄Cl₂; mw: 98.96

CODEN:

Let = 5.6%; uel = 11.4%.

TOXICITY DATA: orl-rat LD50:1120 mg/kg orl-mus LD50:625 mg/kg

HYSAAV 32,349,67 HYSAAV 32.349.67 ihl-mus LCLo: 10 gm/m3 GISAAA 20(8),19,55 skn-rbt LD50:3890 mg/kg UCDS** 3/23/70 ihl-rat TCLo:6000 ppm (6-15D preg) TXAPA9 28,452,74

ihl-rat TCLo:6000 ppm (6-15D preg) TXAPA9 28.452.74

THR: MOD orl in rat, mus. MOD skn in rbt. Disaster Hazard: When heated to decomp it emits very tox fumes of CIT.

1.2-DICHLOROETHANE

mf: C2H4Cl2; mw: 98.96

Lel = 6.2%; uel = 15.9%; flash p: 55.4°F.

Incomp: Dinitrogen tetraoxide: metals. For further information see Vol. 1, No. 4 of DPIM Report.

2,2-DICHLOROETHANOL

CAS RN: 598389

NIOSH #: KK 4100000

mf: C₂H₄Cl₂O; mw: 114.96

TOXICITY DATA: mmo-om: 80 uL/plate mmo-asn 20 uL/plate/2H CODEN: CBINA8 30,9.80 GBINA8 30,9.80

Reported in EPA TSCA Inventory, 1980.

Disaster Hazard: When heated to decomp it emits tox fumes of Cl*.

2,2-DICHLOROETHENYL DIETHYL PHOSPHATE

NIOSH #: TC 0280000

mf: C₆H₁₁Cl₂O₄P; mw: 249.04

DICHLORVOS-ETHYL 2.2-DICHLOROVINYL DIETHYL O-(2,2-DICHLORVINYL)-O,O-DI-ETHYLPHOSPHAT (GERMAN)

PHOSPHATE

TOXICITY DATA: mmo-sat 5 uL/plate ipr-mus LD50:12 mg/kg

CODEN: MUREAV 28.405,75 ARZNAD 5,746,55

THR: MUT data. HIGH ipr. See also esters. Disaster Hazard: When heated to decomp it emits very tox fumes of Cl- and POr.

DICHLORO(4-ETHOXY-0-PHENYLENEDI-AMMINE)PLATINUM (II)

NIOSH #: TP 2497050

mf: C₈H₁₂Cl₂N₂OPt; mw: 418.21

TOXICITY DATA:

CODEN:

JMCMAR 23,459,80 mmo-sat 2500 nmol/L mma-sat 2500 nmol/L JMCMAR 13,459,80

THR: MUT data. See also platinum compounds. Disaster Hazard: When heated to decomp it emits very tox fumes of Cl* and NOr.

DI(2-CHLOROETHYL) ACETAL

CAS RN: 14689975

NIOSH =: KI 3600000

mf: C₆H₁₂Cl₂O₂; mw: 187.08

SYN: 1,1'-(ETHYLIDENE)BIS(OXY)BIS(2-CHLOROETHANE)

TOXICITY DATA: orl-rat LD50:310 mg/kg skn-rbt LD50:200 mg/kg

CODEN: AIHAAP 30,470,69 AIHAAP 30,470,69

THR: HIGH orl. HIGH skn.

Disaster Hazard: When heated to decomp it emits tox fumes of CIT.

4-DI-2" -CHLOROETHYLAMINOAZOBENZENE-2'-CARBOXYLIC ACID

NIOSH =: DG 7450000

mf: C₁₇H₁₇Cl₂N₃O₂; mw: 366.27

SYN: 2-(+ TOXICIT aln-dmg-par THR: M! Disaster 1 tox furr

> 9-(2-(DI(2 ETHYL ACRID

CAS RN: mf: C₂₀H₂₁

SYNS: 1CR-48B NSC-34372

TOXICITY ipr-mus TDL THR: An e

Disaster H. tox fume

DICHLOR

CAS RN: 5 mf: C2H5As

Colorless lic 156° decom 21.5°, vap. c

SYNS: ARSENIC DICH: DICK (GERMAN TOXICITY

ihl-hmn LCLo ihl-mus LCLo ihl-ca: LCLo:1. scu-cat LDIn::

Aquatic To WOCHM: THR: VERY via oral rot Used as a Disaster Horn fumes it em will react w sive fumes.

2.2-DICHLO **ESTER**

CAS RN: 67 mf: C₂H₂Cl₂?

TOXICITY 1 int-mus LDLois scu-rot LDLois pat-frg LDLois, SYN: 2-49-4(DE-2-CHLOROFTHYL)AMINO)PHENYLAZO)-BENZOIC ACID

TOXICITY DATA:

CODEN:

aln-dmg-par 194 ng

الرواوا

BCPCA6 5,206,60

THR: MUT data.

Disaster Hazard: When heated to decomp it emits very tox fumes of Cl⁻ and NO_x.

9-(2-(DI(2-CHLOROETHYL)AMINO)-ETHYLAMINO)-6-CHLORO-2-METHOXY-ACRIDINE

CAS RN: 10072250 NIOSH #: AR 7525000 mf: C₂₀H₂₂Cl₃N₃O+2ClH+H₂O; mw: 517.74

SYNS:

ICR-48B NSC-34372 QUINACRINE ETHYL MUSTARD

TOXICITY DATA: 3 CODEN: ipr-mus TDLo:16 mg/kg/4W:CARC JNCIAM 36,915,66

THR: An exper CARC.

Disaster Hazard: When heated to decomp it emits very tox fumes of Cl⁻, NO_x and HCl.

DICHLOROETHYLARSINE

CAS RN: 598141 NIOSH #: CH 3500000 mf: C₂H₅AsCl₂; mw: 174.89

Colorless liquid, fruity, biting, irr odor. mp: -65°, bp: 156° decomp, d: 1.742 @ 14°, vap. press: 2.29 mm @ 21.5°, vap. d: 6.03.

SYNS:

ARSENIC DICHLOROETHANE DICK (GERMAN)

ETHYLDICHLOROARSINE

 TOXICITY DATA:
 3
 CODEN:

 ihl-hmn LCLo:14 ppm/30M
 NTIS** PB214-270

 ihl-mus LCLo:94 ppm/20M
 ZGEMAZ 13.523.21

 ihl-cat LCLo:12 ppm/40M
 ZGEMAZ 13.523.21

 scu-ca: LDLo:1 mg/kg
 ZGEMAZ 13.523.21

Aquatic Toxicity Rating: TLm961under 1 ppm WQCHM* 2,-,74.

THR: VERY HIGH via inhal and ivn, probably HIGH via oral routes as well. Very irr. See arsenic compounds. Used as a military poison gas.

Disaster Hazard: Dangerous; on contact with acid or acid fumes it emits highly tox fumes of arsenic and phosgene; will react with water or steam to produce tox and corrosive fumes. Can react with oxidizing materials.

2,2-DICHLOROETHYLCARBAMIC ACID ETHYL ESTER

CAS RN: 67049756 NIOSH \Rightarrow : EZ 4075000 mf: $C_5H_9Cl_2NO_2$; mw: 186.05

 TOXICITY DATA:
 3-2
 CODEN:

 ipr-mus LDLo:625 mg/kg
 JPETAB 42.1.31

 scu-rbt: LDLo:1550 mg/kg
 JPETAB 42.1.31

 par-frg LDLo:300 mg/kg
 JPETAB 42.1.31

THR: HIGH par. MOD ipr, scu. See also esters. Disaster Hazard: When heated to decomp it emits very tox fumes of Cl⁻ and NO_x.

O,O-DI(2-CHLOROETHYL)-O-(3-CHLORO-4-MFTHYLCOUMARIN-7-YL) PHOSPHATE

CAS RN: 321551 NIOSH #: GN 5250000 mf: $C_{14}H_{14}Cl_{9}O_{6}P_{1}$ mw: 415.60

SYNS

O,O-BIS(2-CHEOROETHYL) O-(3-CHLORO-4-METHYL-7-COU-MARINYL) PHOSPHATE 3-CHLORO-7-HYDROXY-4-METHYLCOUMARIN RIS(2-CHLOROETHYL)PHOSPHATE PHOSPHATE PHOSPHATE

TOXICITY DATA: 2 CODEN:
orl-dom LD50:763 mg/kg
orl-rat LD50:900 mg/kg
ipr-ckn LD50:800 mg/kg
BCPCA6 16.1183,67

Toxicology Review: RREVAH 46,1,73; PMDCAY 10, 85,74.

THR: MOD orl, ipr.

Disaster Hazard: When heated to decomp it emits very tox fumes of PO_x and Cl⁻.

DICHLOROETHYLENE

CAS RN: 25323302 NIOSH #: KV 9250000 mf: C₂H₂Cl₂: mw: 96.94

 TOXICITY DATA:
 2
 CODEN:

 ihi-mus LCLo:76 gm/m3/2H
 AEXPBL 83.235.18

 ihi-gpg LCLo:155 gm/m3/1H
 AEXPBL 83.235.18

THR: MOD ihl in mus and gpg.

Disaster Hazard: When heated to decomp it emits tox fumes of Cl⁻.

1,1-DICHLOROETHYLENE

CAS RN: 75354 NIOSH \pm : KV 9275000 mf: $C_2H_2Cl_2$; mw: 96.94

Colorless volatile liquid. bp: 31.6° , lel = 7.3%, uel = 16.0%, fp: -122° , flash p: 0° F (OC), d: $1.213 \oplus 20^{\circ}$ / 4° , autoign. temp.: 1058° F.

SYNS:

CHLORURE DE VINYLIDENE 1-1-DCE
(FRENCH) NCI-C54262
1,1-DICHLOROETHENE VINYLIDENE DICHLORIDE

TOXICITY DATA: 3
ori-rat TDLo:200 mg/kg (6-15D preg)
ihl-rat TCLo:80 ppm/7H (6-15D preg)
ihl-rbt TCLo:160 ppm/7H (6-15D preg)

preg)
mmo-sat 5 pph
mma-sat 3 pph CH
ish-rat TCLe-55 ppm/52W-11-ETA
ish-mus TCLo-55 ppm/6H/1Y-11-ETA
skn-mus TDLo-4840 mg/kg*NEO
ish-rat TC1-55 ppm/1Y-11-ETA

CODEN: TXAPA9 49,189,79 TXAPA9 49,189,79 TXAPA9 49,189,79

MUREAV 57,141,78 MUREAV 58,183,78 JTEHD6 4,15,78 EVHPAZ 21,25,77 JIND6 65,1432,79 EVHPAZ 21,25,77

946 cis-DICHLOROETHYLENE

ihl-mus TC:55 ppm/43W-I:ETA thi-hmn TCLo:25 ppm:SYS orl-rat LD50:200 mg/kg thi-rat LCLo: 10000 ppm/24H ihi-mus LC50:98 ppm/22H orl-dog LDLo: 5750 mg/kg ivn-dog LDLo:225 mg/kg scu-rbi LDLo: 3700 mg/kg

JTEHD6 4,15,78 CHINAG 11.463,76 DCTODJ 1,63,77 EXMPA6 20,187.74 JTEHD6 3(5-6),913,77 QJPPAL 7,205,34 OJPPAL 7,205,34 OJPPAI, 7,205,34

Aquatic Toxicity Rating: TLm96:1000-100 ppm WOCHM* 3,-,74. Carcinogenic Determination: Animal Positive IARC** 19,439,79.

TLV: Air: 10 ppm DTLVS* 4,432,80. Toxicology Review: CTOXAO 8,633,75; CMTVAS 10(3),49,73; NTIS** ORNL/TIRC-77/3. Occupational Exposure to Vinyl Halides recm std: Air: TWA 1 ppm; CL 5 ppm/15M NTIS**. NTP Carcinogenesis Bioassay Completed as of December 1980. "NIOSH Manual of Analytical Methods" VOL 4 266*. NIOSH Current Intelligence Bulletin 28, 1978, Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FERREAC 45,13646,80.

THR: An exper MUT, ETA, NEO, CARC. HIGH acute orl, ihl. See also vinyl chloride.

Fire Hazard: Highly dangerous, when exposed to heat or flame

Explosion Hazard: Mod, in the form of gas, when exposed to heat or flame. Also can explode spontaneously; reacts violently with chlorosulfonic acid, HNO3,

Disaster Hazard: Highly dangerous; see chlorides; can react vigorously with oxidizing materials.

To Fight Fire: Alcohol foam, CO2, dry chemical. Incomp: Air; chlorotri-fluoroethylene; ozone; perchloryl fluoride.

cis-DICHLOROETHYLENE

CAS RN: 156592

NIOSH #: KV 9420000

mf: C₂H₂Cl₂; mw: 96.94

Colorless liquid, pleasant odor, mp: -80.5°, bp: 59°, lel = 9.7%, uel = 12.8%, flash p: 39°F, d: 1.2743 @ 25°/4°, vap. press: 400 mm @ 41.0°, vap. d: 3.34.

SYNS:

1.2-DICHLOROETHYLENE

ACETYLENE DICHLORIDE

TOXICITY DATA: 1 CODEN:

ihl-mus LCLo:65000 mg/m3/2H ihl-cat LCLo: 20000 mg/m3/6H

AHBAAM 116,131,36 AHBAAM 116,131,36

Reported in EPA TSCA Inventory, 1980.

THR: LOW via oral route. In high conc it is irr and narcotic. Has produced liver and kidney injury in exper

Fire Hazard: Dangerous, when exposed to heat or flame. Reacts violently with N2O4, KOH, Na, NaOH.

Spontaneous Heating: No.

Explosion Hazard: Mod. in the form of vapor when exposed to fiame.

Disaster Hazard: Dangerous: see chlorides; can react vigorously with oxidizing materials.

To Fight Fire: Water spray, foam, CO2, dry chemical.

cis. 1.2-DICHLOROETHYLENE

mf: C₂H₂Cl₂; mw: 96.94

Flash p: 42.8°F; lel = 3.3%; uel = 15%

trans-1,2-DICHLOROETHYLENE

mf: C2H2Cl2: mw: 96.94

Flash p: 35.6°F; lel = 9.7%; uel = 12.8%.

Can cause fire hazard.

Incomp: Alkalies; diffuoromethylene dihypofluorite; nitrogen tetraoxide.

1,2-DICHLOROETHYLENE CARBONATE

CAS RN- 3967553

NIOSH #: JH 7400000

mf: C₃H₂Cl₂O₃; mw: 156.95

TOXICITY DATA:

CODEN:

JNCIAM 48,1431,72

scu-mus TDLo:648 mg/kg/ 54W-I:ETA

THR: An exper ETA.

Disaster Hazard: When heated to decomp it emits tox fumes of Ct-.

3

DICHLORO(ETHYLENEDIAMMINE)-PLATINUM(II)

CAS RN: 14096516 NIOSH #: TP 2497100

mf: C₂H₈Cl₂N₂Pt; mw: 326.11

TOXICITY DATA: mmo-sat 2 ug/plate

CODEN: MUREAV 77,45,80

mma-sat 2 ug/plate ipt-mus LDLo-14 mg/kg MUREAV 77.45.80 B1CHBX 2,187,73

THR: MUT data. HIGH ipr. See also platinum com-

Disaster Hazard: When heated to decomp it emits very tox fumes of Cl- and NOz.

DI-2-CHLOROETHYL MALEATE

CAS RN: 63917066

NIOSH =: ON 1050000

mf: C₆H₁₀Cl₂O₄; mw: 241.08

TOXICITY DATA:

CODEN:

3 orl-rat LD50:71 mg/kg TXAPA9 28,313,74 TXAPA9 28,313.74 skn-rot LD50:140 mg/kg

THR: HIGH orl, skn.

Disaster Hazard: When heated to decomp it emits tox fumes of Cl-.

2,3-DICHLORO-N-ETHYLMALEINIMIDE

CAS RN: 20198770

NIOSH =: ON 5175000

mf: C₆H₅Cl₂NO₂; mw: 194.02

SYN: N-ETHYL-DICHLOROMALEINIMIDE

TOXICITY DATA:

CODEN:

ipr-mus TDLo:6200 ug/kg/(9D

ARTODIN 37.15.76

prego TER

ipr-mus LD50:15 mg/kg

ARTODN 37,15,76

ivn-mus LD50:5600 ug/kg

CSLNX* NX=03654

ipr-mus TI preg) TI ipr-mus TI preg) THR: A: Disaster

2-(1.2-DI DIOX

tox fur

CAS RN mf: C₆H₁₀

TOXICIT skn-rbt 10 n orl-rat LD50 skn-rbt LD5

THR: MO Disaster I fumes o

DICHLO

CAS RN: mf: CaH10

Liquid.

SYN: ETHY TOXICIT' Aquatic To 4.-.74. I

FEREA tory, 19: THR: HIC and inha

Disaster H emits hi. react with fumes: c.

DICHLOR

CAS RN: mf: C₂H₆C)

Liquid, var SYN: ETHYL

TOXICITY Aquatic To 4.- 74 DOT: Fig-

FEREA tory, 198 THR: HIC and inha-

Fire Hazar, or power Disaster Ha

THR: MOD orl. A skn irr. See also aldehydes. Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

TOLUENE

CAS RN: 108883 mf: C₇H₆; mw: 92.15 NIOSH #: XS 5250000

Colorless liquid, benzol-like odor. Flammable. mp: -95° to -94.5°, bp: 110.4°, flash p: 40°F (CC), ulc: 75-80, lel = 1.27%, uel = 7%, d: 0.866 @ 20°/4°, autoign. temp.: 896°F, vap. press: 36.7 mm @ 30°, vap. d: 3.14. Insol in water; sol in acetone; misc in absolute alc, ether, chloroform.

SYNS:

METHYLBENZENE METHYLBENZOL NCI-C07272 PHENYLMETHANE TOLUEEN (DUTCH)
TOLUEN (CZECH)
TOLUGL
TOLUGLO (ITALIAN)

TOXICITY DATA: 3
cyt-rat-scu 12 gm/kg/12D-1
ih)-rat TCLo: 1500 mg/m3/24H (1-8D preg)

CODEN: GTPZAB 17(3),24,73 TXCYAC 11,55,78

EMORAO 28,286.80

ihl-rat TCLo: 1000 mg/m3/24H (7-J4D preg) ori-mus TDLo: 9 gm/kg (6-15D preg) ori-mus TDLo: 15 gm/kg (6-15D preg)

TJADAB 19,41A,79 TJADAB 19,41A,79 TJADAB 19,41A,79 TXCYAC 11,55,78

ori-mus TDLo:15 gm/kg (6-15D preg) ori-mus TDLo:30 gm/kg (6-15D preg) ihi-mus TCLo:500 mg/m3/24H (6-13D preg) unk-rat LD50:6900 mg/kg unk-mus LD50:2000 mg/kg eye-hmn 300 ppm skn-rbt 435 mg MLD eve-rbt 870 ug MLD

GISAAA 45(12),64.80 GISAAA 45(12),64,80 JIHTAE 25,282,43 UCDS** 7/23/70 UCDS** 7/23/70 28ZPAK -,23,72 GISAAA 42(1),32,77 JAMAAP 123,1106,43 WEHSAL 9,131,72 AMIHAB 19,403,59 AIHAAP 30,470,69

ori-rat LD50: 5000 mg/kg ihl-rat LCLo: 4000 ppm/4H ppr-rat LDLo: 800 mg/kg ihl-mus LC50: 5320 ppm/8H ppr-mus LD50: 1120 ug/kg skn-rbt LD50: 1120 ug/kg scu-frg LDLo: 920 mg/kg

eye-rbt 2 mg/24H SEV

cyt-rat-ihl 610 mg/m3/16W-I

ihl-hmn TCLo:200 ppm:CNS

ihl-man TCLo:100 ppm:PSY

AMIHAB 19.403,59 AIHAAP 30.470,69 TNAPA9 1.156,59 JIHTAB 25.366,43 AGGHAR 18.109,60 UCDS** 7,723/70 AEPPAE 130,250,28

Aquatic Toxicity Rating: TLm96: 100-10 ppm WQCHM* 4.-.74.

TLV: Air: 100 ppm DTLVS* 4,400,80. Toxicology Review: AEHLAU 22,373,71; CTOXAO 11(5),549,77; FNSCA6 2,67,73; MUREAV 47(2),75,78; CTOXAO 11(5),549,77; 27ZTAP 3,144,69. OSHA Standard: Air: TWA 200 ppm: CL 300; Pk 500/10M (SCP-V) FEREAC 39,23540,74. DOT: Flammable Liquid, Label: Flammable Liquid FEREAC 41,57018,76. Occupational Exposure to Toluene recm std: Air: TWA 100 ppm; CL 200 ppm/10M NTIS**. Currently Tested by NTP for Carcinogenesis by Standard Bioassay Protocol as of December 1980. Reselected by NTP Carcinogenesis Bioassay as of December 1980. "NTOSH Manual of Analytical Methods" VOL 1 127, VOL 3 5343. Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed

Rule FERREAC 45,13646.80. EPA TSCA₈8E No. 02780079P-Followup Sent as of April, 1979.

THR: MUT data. A skn, eye irr. A hmn CNS, PSY MOD ihl, ipr, scu; HIGH ipr; LOW orl, skn. Toluene is derived from coal tar, and commercial grades usually contain small amounts of benzene as an impurity. Acute poisoning, resulting from exposures to high conc of the vapors, are rare with toluene. Inhal of 200 ppm of toluene for 8 hrs may cause impairment of coordination and reaction time; with higher conc (up to 800 ppm) these effects are increased and are observed in a shorter time. In the few cases of acute toluene poisoning reported, the effect has been that of a narcotic. the workman passing through a stage of intoxication into one of coma. Recovery following removal from exposure has been the rule. An occasional report of chronic poisoning describes an anemia and leucopenia, with biopsy showing a bone marrow hypoplasia. These effects, however, are less common in people working with toluene, and they are not as severe.

Exposure to cone up to 200 ppm produces few symptoms. At 200-500 ppm, headache, nausea, eye irr, loss of appetite, a bad taste, lassitude, impairment of coordination and reaction time are reported, but are not usually accompanied by any laboratory or physical findings of significance. With higher cone, the above complaints are increased and in addition, anemia, leucopenia and enlarged liver may be found in rare cases.

A common air contaminant.

Fire Hazard: Slight, when exposed to heat, flame or oxidizers.

Explosion Hazard: Mod, when exposed to fiame or reacted with (H₂SO₄ + HNO₃), N₂O₄, AgClO₄, BrF₃, UF₄.

Disaster Hazard: Mod dangerous; when heated it emits irr fumes; can react vigorously with oxidizing materials. To Fight Fire: Foam, CO₂, dry chemical. For further information see Vol. 2, No. 1 of DPIM Report.

p-TOLUENEBORONIC ACID, CYCLIC-2-METHYL-2-PROPYLTRIMETHYLENE ESTER

CAS RN: 2430468 NIOSH =: XS 7875000 mf: C₁₄H₂₁BO₂; mw: 232.16

SYNS:

DIOSSOBORONO
2-METHYL-2-PROPYL-1.3-PRO-PANEDIOL-P-METHYLBEN- 5-METHYL-5-PROPYL-2-(P-TO-LYL)-1,3,2-DIOXABORINANE

PANEDIOL-P-METHYLB ZENEBORONATE

TOXICITY DATA: ipr-rat LD50:1600 mg/kg ipr-mus LD50:3350 mg/kg 2 CODEN: 27ZQAG +319.72 27ZQAG +319.72

THR: MOD ipr. See also boron compounds and esters. Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

TOLUENEBORONIC ACID, CYCLIC NEOPENTANETETRYL ESTER

CAS RN: 7091410

NIOSH =: XS 7950000

mf: C₁₉H₂₂B₂O₄; mw: 336.03

SYNS:

DI (P. METHYLBEN NATE) DE PENTA (FRENCH) DI-(P-METHYLBENA NATE) DE PENTA

TOXICITY D. orl-rat LD50:1130 ipr-rat LD50:570 orl-mus LD50:181 ipr-mus LD50:800

THR: MOD o ters. Disaster Hazar smoke and f

TOLUENEDI

CAS RN: 253

TOXICITY I.

FEREAC 41, Reported in E THR: No dat

TOLUENE-2

CAS RN: 958 mf: C₇H₁₀N₂;

Prisms. mp: 5

SYNS:

C.I. OXIDATION M-TOLYLENEDIA 3-AMINO-P-TOLE C.I. 76035 1,3-DIAMINO-DA 2.4-DIAMINO-DA DIAMINO-DA DA DIAMINO-DA DA DETHYL-1,3-E

TOXICITY
ske-rbi 500 mg
eye-rbi 100 mg
mma-sat 100 u
sin-dmg-par 5
sin-dmg-orl 15
otr-ham'emb f
ori-rat TDLo:
C:CAR
orl-mus TDLc
C:CAR
orl-mus TDL:

ori-rat TD:55

ori-rat TD:0) ori-rat LDI: scu-rat LDI: scu-cog LDI: scu-rot LDI:

4,5,7-TRICHLOROBENZTHIADIAZOLE-2,1,3

CAS RN: 1982554

NIOSH #: DL 0175000

mf: C₆HCl₃N₂S; mw: 239.50

SYN: 4,5,7-TRICHLORO-2,1,3-BENZOTHIADIAZOLE

TOXICITY DATA: orl-rat LD50:1620 mg/kg orl-mus LD50: 1500 mg/kg CODEN: WRPCA2 9,119,70 31ZOAD 1.423,68

Disaster Hazard: When heated to decomp it emits very tox fumes of NO_x and SO_x.

2

TRICHLOROBENZYL CHLORIDE

CAS RN: 1344327

mf: C7H4Cl4; mw: 229.91

TOXICITY DATA: ori-rat LD50:3075 mg/kg CODEN: 28ZEAL 4,359,69

NIOSH #: XT 8575000

Taxicology Review: 27ZTAP 3,146,69. Reported in EPA

TSCA Inventory, 1980. THR: MOD orl.

Disaster Hazard: When heated to decomp it emits tox fumes of CI-.

3.4.4'-TRICHLOROCARBANILIDE

CAS RN: 101202

NIOSH #: FE 1250000

 $mf: C_{13}H_9Cl_3N_2O; mw: 315.59$

SYN: N-(3.4-DICHLOROPHENYL)-N'-(4-CHLOROPHENYL)UREA

TOXICITY DATA: ipr-mus LD5012100 mg/kg CODEN:

1.PPTAK 27.306.79

Toxicology Review: 27ZTAP 3,146,69. Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FERREAC 45,13646,80.

THR: MOD ipr.

Disaster Hazard: When heated to decomp it emits very tox fumes of Cl+ and NOx.

4,5,6-TRICHLORO-2-(2,4-DICHLOROPHENOXY) PHENOL

NIOSH =: SL 0532000

mf: C₁₂H₅Cl₅O₂; mw: 358.42

SYN: 2-(2.4-DICHLOROPHENOXY)-4,5,6-TRICHLOROPHENOL

TOXICITY DATA:

CODEN-

sli-mus-ipr 140 umol/L

MUREAV 46,202,77

THR: MUT data.

Disaster Hazard: When heated to decomp it emits tox fumes of Cl-.

1.1.2-TRICHLORO-2.2-DIFLUOROETHANE

CAS RN: 354212

NIOSH =: KI 1435000

mf: CHCl₃F₂; mw: 157.37

SYN: UCON FLUOROCARBON 122

TOXICITY DATA: ori-rat LDLo:7500 mg/kg ihl-rat ECLo:4000 ppm/4H

CODEN_a 16CZAC 20,459,66 UCMH** 11,15,62

THR: MOD orl, ihl.

Disaster Hazard: When heated to decomp it emits very tox fumes of F- and Cl-.

TRICHLORODINITROBENZENE

CAS RN: 8003461

NIOSH #: CZ 7960000

mf: C₆HCl₃N₂O₄; mw: 271.44

SYNS:

BRASSISAN (GERMAN)

DINITROTRICHI OROBENZENE ISOMERIC MIXTURE

TOXICITY DATA: CODEN:

orl-rat LD50:425 mg/kg skn-rat LD50:425 mg/kg **GUCHAZ 6,516,73** GUCHAZ 651673

- ::

THR: MOD, via oral and dermal routes. See also benzene and nitrobenzene. A pesticide.

Fire Hazard: Mod, when exposed to heat or flame. See

Explosion Hazard: See nitrates.

Disaster Hazard: Dangerous; when heated to decomp it emits highly tox fumes of NO_x and Cl⁻; can react vigorously with reducing materials.

TRICHLORO ESTERTIN

NIOSH =: WH 8240000

SYN: ESTERTRICHLOROSTANNANE

TOXICITY DATA: unk-rat LD50:5500 mg/kg

CODEN: TIUSAD 107.1.76

Occupational Exposure to Organotin Compounds recm std: Air: TWA 0.1 mg(Sn)/m3 NTIS**

THR: LOW unk. See also tin compounds and esters. Disaster Hazard: When heated to decomp it emits tox fumes of Cl-.

1.1,1-TRICHLOROETHANE

CAS RN: 71556

NIOSH =: KJ 2975000

mf: C₂H₃Cl₃; mw: 133.40

Colorless liquid. bp: 74.1°, fp: -32.5°, flash p: none, d: 1.3376 @ 20°/4°, vap. press: 100 mm @ 20.0°. Insol in water; sol in acetone, benzene, carbon tetrachloride, methanol, ether.

SYNS:

CHLOROETHENE CHLOROTHANE NU

1.1.1-TRICHLORAETHAN (GER-MAN) TRICHLORO-1,1,1-ETHANE

CHLOROTHENE METHYL CHLOROFORM METHYLTRICHLOROMETHANE

(FRENCH) ALPHA-TRICHLOROETHANE 1.1.1-TRICLOROETANO (ITALIAN)

NCI-C04626 1,1,1-TRICHLOGRETHAAN (DUTCH)

TOXICITY DATA:

CODEN: TOXID5 1,28,80

inl-rat TCLo:2100 ppm/24H (14D pre/I-20D preg)

eye-man 450 ppm/8H skn-rbt 5 gm/12D-I MLD BJIMAG 28,286,71 AIHAAP 19,252,58

skn-rbt 500 mg/24H MOD eye-rbt 100 mg MLD eye-rbt 2 mg/24H SEV ihl-man LCLo:27 gm/m3/10M ihl-man TCLo:350 ppm:PSY orl-hmn TDLo:670 mg/kg:GIT ihl-hmn TCLo:920 ppm/70M:CNS orl-rat LD50:10300 mg/kg ihl-rat LCLo:1000 ppm ipr-rat LD50:5100 mg/kg orl-mus LD50:11240 mg/kg ihl-mus LCLo:11000 ppm/2H ipr-mus LD50:4700 mg/kg orl-dog LD50:3100 mg/kg ipr-dog LD50:3100 mg/kg inr-dog LDLo:95 mg/kg ivn-dog LDLo:95 mg/kg	28ZPAK -,28.72 AIHAAP 19,353.58 28ZPAK -,28.72 JOCMA7 8,358.66 WEHSAL 10,82.73 NTIS** PB257-185 AIHAAP 19,353.58 NTIS** PB257-185 FMCHA2 -,D317.80 NTIS** PB257-185 NTIS** PB257

Aquatic Toxicity Rating: TLm96: 100-10 ppm WQCHM* 3,-,74. Carcinogenic Determination: Indefinite IARC** 20,515,79

TLV: Air: 350 ppm DTLVS* 4,269,80. Toxicology Review: FAZMAE 18,365,74; EATR** EB-TR-75047; AIHAAP 40,A46,79. OSHA Standard: Air: TWA 350 ppm (SCP-J) FEREAC 39,23540,74. DOT: ORM-A, Label: None FEREAC 41,57018,76. Occupational Exposure to 1,1,1-Trichloroethane recm std: Air: CL 350 ppm/15M NTIS**. NCI Carcinogenesis Bioassay Completed; Results Negative (NCITR* NCI-CG-TR-3,77). Currently Tested by NTP for Carcinogenesis by Standard Bioassay Protocol as of December 1980. "NIOSH Manual of Analytical Methods" VOL 1 127, VOL 3 S328. NIOSH Current Intelligence Bulletin 27, 1978. Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FERREAC 45,13646.80.

THR: In hmn it causes PSY, GIT, CNS effects. A MOD skn irr, a SEV eye irr in rbts. LOW orl, ipr, ihl in rat, mus. MOD orl, ipr dog; Narcotic in high conc. Causes a proarrhythmic activity which sensitizes the heart to epinephrine-induced arrhythmias. This sometimes will cause a cardiac arrest particularly when this material is massively inhaled as in drug abuse for euphoria. Reacts violently with N2O4, O2, O2 liquid, Na, NaOH, Na-K alloy.

Disaster Hazard: Dangerous; see chlorides.

For further information see Vol. 2, No. 1 of DPIM Report

1,1,2-TRICHLOROETHANE

CAS RN: 79005 NIOSH #: KJ 3150000 mf: C₂H₃Cl₃; mw: 133.40

Liquid, pleasant odor, bp: 114°, fp: -35°, d: 1.4416 @ 20°/4°, vap. press: 40 mm @ 35.2°.

ETHANE TRICHLORIDE NCI-C04579 BETA-TRICHLOROETHANE 1,2,2-TRICHLOROETHANE

TROICHLOROETAN(1,1,2) (POL-ISH) VINYL TRICHLORIDE

TOXICITY DATA: CODEN: UCDS** 6/28/73 skn-rbt 500 mg open MLD JETOAS 9.171.76 skn-rbt 810 mg/24H SEV JETOAS 9,171,76 eve-rbt 162 mg MLD APTOA6 41,298,77 skn-gpg 1440 mg/15M APTOA6 41,298,77 cyt-gpg-skn 2880 ug/kg orl-mus TDLo:76 gm/kg/78W-NCITR* NCI-CG-TR. 74,78 orl-mus TD:152 gm/kg/78W-I:CAR NCITR* NCI-CG-TR-74.78 UCDS** 6/28/72 ori-rat LD50:1140 mg/kg AIHAAP 30.470,69 ihl-rat LCLo:500 ppm/8H ipr-mus LD50:994 mg/kg TXAPA9 9,139,66 JPETAB 123,224,58 scu-mus LD50:227 mg/kg AJHYA2 16,325,32 orl-dog LDLo:500 mg/kg ipr-dog LD50:450 mg/kg TXAPA9 10,119,67 ivn-dog LDLo:95 mg/kg QJPPAL 7,205,34 inl-cat LCLo:13100 mg/m3/4.5H AHBAAM 116,131,36 scu-rbt LDLo:500 mg/kg **OJPPAL 7,205,34**

Aquatic Toxicity Rating: TLm96: 100-10 ppm WQCHM* 3,-,74. Carcinogenic Determination: Animal Positive IARC** 20,533,79.

TLV: Air: 10 ppm (skin) DTLVS* 4,406,80. Toxicology Review: FAZMAE 18,365,74; AIHAAP 40,A46,79; 27ZTAP 3,146,69. OSHA Standard: Air: TWA 10 ppm (skin) (SCP-J) FEREAC 39,23540,74. NCI Carcinogenesis Bioassay Completed; Results Positive: Mouse (NCITR* NCI-CG-TR-74,78). NCI Carcinogenesis Bioassay Completed; Results Negative: Rat (NCITR* NCI-CG-TR-74,78). "NIOSH Manual of Analytical Methods" VOL 1 127, VOL 2 S134. NIOSH Current Intelligence Bulletin 27, 1978. Reported in EPA TSCA Inventory, 1980, EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FERREAC 45, 13646.80.

THR: HIGH ivn, scu and MOD orl, ihl, ipr and dermal. MOD skn irr and SEV eye irr in rbts. Trichloroethane has narcotic properties and acts as a local art to the eyes, nose and lungs. It may also be injurious to the liver and kidneys. A fumigant. An exper CARC. MUT data

Disaster Hazard: Dangerous; see chlorides.

Incomp: K.

For further information see Vol. 2, No. 6 and Vol. 3, No. 2 of DPIM Report.

1,1,1-TRICHLOROETHANE mixed with TETRACHLOROETHYLENE (3:1)

NIOSH =: KJ 3950000

SYNS: DOWCLENE

EC CLEANER

TOXICITY DATA: CODEN: orl-rat LD50:15 gm/kg AIHAAP 24,541.63 ibl-rat LC50:3700 ppm 7H AIHAAP 24,541.63 ori-mus LD50:10 am/kg ori-not LD50:13 gm/kg AIHAAP 24,541.63 AIHAAP 24.541.63 AIHAAP 24,541,63 ori-epg LD5016 em/kg

THR: LOW crl. ihl in rat; LOW orl in mus; orl in rbt and orlin gpg.

Disaster Hazard: When heated to decomp it emits very tox rumes of CIT.

TRICHLOR

CAS RN: 11 mf: C₂H₃Cl₃(

Liquid. mp: 1 4°, vap. pres:

2,2,2-TRICHLORG TRICHLOROETHY TOXICITY

mmo-asn 5 uL/i orl-rat LD50:60 ipr-rat LDLo:30 ivn-mus LD50:2 ivn-rbt LDLo St

Reported in 1 THR: HIGH An anesthe Disaster Haze

TRICHLORE

CAS RN: 750 mf: C₂H₃Cl₃S

Fuming liquid 16°F.

TRICHLORO(VIN) TRICHLOROVINY:

TOXICITY I skn-rbt 1 mg/241 skn-rbt 625 mg c eye-rbt 50 ug SE ori-rat LD50:125 ihi-rat LCL6:500 ori-mus LD50:3. thi-mus LC50:30 san-rot LD50:68

Aquatic Toxic

4.-.74. DO

Liquid FER Inventory, THR: MOD c lanes. Fire Hazard: moist air. Disaster Haza

fumes of CI

tox and cor

2.2.2-TRICH)

CAS RN: 515 $mf\colon C_4H_7Cl_3C$

Crystals, Jess organic solve:

SYNS

CHICKAL ALCOH CHLORAL ETHYL

.

Employee and Environmental Salety

May 21, 1985

Mr. Tom Tiesler
Director
Division of Solid Waste Management
Department of Health and Environment
4th Floor, Custom House
701 Broadway
Nashville, Tennessee 37219-5403

Dear Tom:

The purpose of this letter is to advise you of a chemical waste site once used by a division of Genesco Inc. (the "Company" or "Genesco") and to solicit the assistance and approval of the Tennessee Department of Health and Environment (the "Department") with respect to certain actions the Company proposes to take.

The Company is a Tennessee corporation with its executive offices located at Genesco Park, Nashville, Tennessee. Genesco operates in two major industry segments footwear and men's apparel - and employs approximately 3,900 persons in the State of Tennessee. General Adhesives, formerly known as General Adhesives and Chemical Company, is a division of Genesco's footwear segment which operates a manufacturing plant at 6100 Centennial Boulevard in Nashville, Tennessee. General Adhesives manufactures and sells specialty industrial and consumer products, which include adhesives, sealants and coatings utilizing solvent based, thermoplastic and water based technologies. It is a generator (EPA I.D. Number TND 001981240) and transporter (EPA I.D. Number TND 001367549) of hazardous waste currently disposed of at either the Stauffer Chemical Company, Mt. Pleasant, Tennessee or Chemical Waste Management Company, Emelle, Alabama.

It has recently been brought to the attention of Genesco's corporate management that for a limited period of time during the summer and/or fall of 1978, approximately eight hundred 55-gallon barrels of waste material from General Adhesives were disposed of in a rural area in Williamson County, Tennessee. Preliminary indications are that some of the waste

Genesco Inc. Genesco Park Nashville TN 37202 Mr. Tom Tiesler May 21, 1985 Page 2

(approximately 50-80 barrels) was buried in the barrels and the remainder was poured from barrels into phosphate pits or earthen trenches. The disposal site is an approximately two acresection of a 146 acre farm owned by Emmett N. Kennon located in the fifteenth civil district of Williamson County, Tennessee on the east side of Wilson Pike between Moores Lane and Split Log Road (the "Kennon Property"). Enclosed is a copy of a map showing the location of the Kennon Property and the approximate location of the disposal site.

The exact amount and contents of the waste material are unknown; however, it is believed that it contained water based adhesives and may have contained acetone; ethyl acetate; hexane; methylene chloride; methyl ethyl ketone; rubber solvent; toluene; l,l,l-trichloroethane; trichloroethylene and organic fillers. A large portion of the organic solvents that was poured into the phosphate pits and earthen trenches may have evaporated, but it is believed that approximately 50-80 barrels were buried on the Kennon Property and may still contain waste material.

Having been informed of the reported waste disposal, corporate management immediately instructed its counsel to undertake an investigation of this matter. Eased on the preliminary findings of that investigation, the Company developed the general plan of action outlined herein and arranged for a meeting with you. The plan has been developed in consultation with Mr. V. Wayne McCoy of Resource Consultants Inc. of Brentwood, Tennessee. Implementation of the plan calls for the employment of hydrogeologists, soil geologists and other experts, possibly including a waste disposal firm.

The details of the plan and the retention of experts and others to carry out the plan are subject to the Department's approval, and representatives of the Department are invited to observe or participate in all aspects of its implementation.

The first phase of the plan, as proposed by Genesco, is designed, through hydrogeological study, to:

- 1. Identify more specifically the area and volume of the land area on the Kennon Property that has been used for disposal of waste generated by General Adhesives;
- Determine the extent to which chemical waste generated by General Adhesives is still present in the soil in and around the disposal site;

Mr. Tom Tiesler May 21, 1985 Page 3

- 3. Determine the existence and direction of possible surface water flows and subsurface aquifers in and around the disposal site;
- 4. Determine if any of the chemicals generated by General Adhesives is present in any surface water or groundwater in and around the disposal site; and
- 5. Develop a report regarding the environmental impact and preliminary recommendations for any corrective action indicated.

Subject to Department approval, Genesco proposes to retain the services of Resource Consultants and Geologic Associates Inc. of Franklin, Tennessee, as soon as possible to perform the initial surveys, tests and analyses to define the nature and extent of any environmental problem that may exist on the Kennon Property and surrounding area.

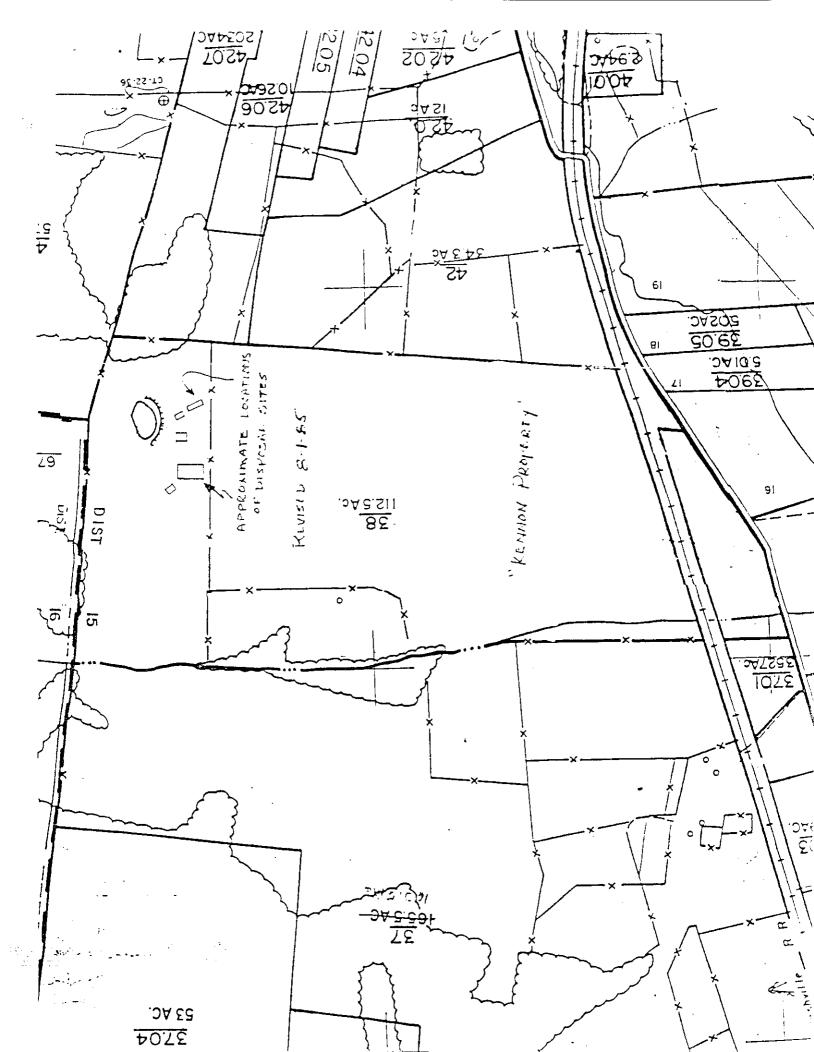
Genesco will meet with appropriate Department representatives to review the results of the surveys, tests and analyses and to more fully develop any preliminary plan for any remedial action.

If waste removal and site cleanup is required, the Company will retain the services of a Department-approved firm to excavate, exhume, analyze, transport and dispose of contaminated material. Any cleanup and removal required will be subject to necessary pre-closure site tests and analyses conducted by Geologic Associates Inc. or other approved firms.

Sincerely,

Ralph Mosel

Directór



Vallettin School of the Land Will Shock to Much

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_	SYSTEM	GROUP	FORMATION	ROCK STRATA	AVERAGE THICKNESS ft.	RANGE OF THICKNESS ft.	GENERALIZED DESCRIPTION OF ROCKS OUTCROPPING IN NASHVILLE AND MIDDLE TENNESSEE.
			STE. GENEVIEVE (MONTEAGLE)		250	180-350	STE. GENEVIEVE LIMESTONE: Gray to white limestone, variable bedding thickness, politic layers, gray chert near base. Weathers to present ground water table, very cavernous, develops karst topgraphy, weathers to reddish brown clay 20-40 leet thick, Outcrops on Northern Highland Rim. ST. LOUIS FORMATION: Brownish gray cherty limestone, thick bedded to massive, numerous gray to black chert beds
	AN		ST. LOUIS		180	100-280	and nodules. Weathers deep to present ground water table, develops karst topography, weathers to reddish brown clay about 20 feet thick. Outcrops on Highland Rim. WARSAW LIMESTONE: Gray, cross bedded limestone, massive, line grained, some chert. Weathers deep but sinkhole development not as intense as St. Louis Formation. Sandy and shaley facies near base. Weathers to reddish brown clay about 20 feet deep. Outcrops on Highland Rim. FORT PAYNE FORMATION: Dark gray silistone, shale, and
	MISSISSIPPIAN		WARSAW		100	40-150	cherty innestone. Thin beds of crinoidal limestone, green shale at base (Maury Shale), contains phosphate nodules. Weathers to residual cherty clay about 15 feet deep. Outcrops along Highland Rim and higher hills within Central Basin. Excellent road metal. CHATTANDOGA SHALE: Dark gray(sh black fisale,
	MIS		FT. PAYNE		250	200-400	carbonaceous shale, thin sandstone at base, Weathers to light butt clay, Outcrops on Highland Rim and on higher hills within Central Basin. Widely used by geologists as a mapping unit, both in surface and subsurface. PEGRAM FORMATION: Light gray limestone, massive, Minor amounts of light gray shale and sandstone in lower portion. Outcrops mainly in the Kingston Springs area. CAMDEN FORMATION: Thin to medium bedded blue gray, shaley limestone containing nodules and bands of chert. Cherl beds average 6 to 12 inches thick and are separated by white clay partings. Weathers to thin residual soil less than three feet thick then a thicker weathered layer of angular blocks and sharp fragments of chert inbbie. Very difficult offill or excavate with conventional accavation equipment. Outcrops mainly in Benton, Decatur, and Perry counties. Chert beds are used locally as road metal and ballact. FLAT GAP LIMESTONE: Light gray and pink limestone, occasionally glaucontite in upper part. Outcrops in extreme
			CHATTANOOGA		20	10-70	western counties of Highland Rim, Very good concrete aggregate.
	_		PEGRAM		17	0-30	ROSS FORMATION: Atternating facies of thin limestone and
	DEVONIAN		CAMDEN		95	0-220	thick shales. Shales are blue or greenish gray. Limestones weather to glades and shales generally do not have slope stability on steep road cuts. SILURIAN SYSTEM: Extremely variable in outcrop and thickness. Major unconformity extends from base of Mississippian System through Devonion and Silurian
	۵ ا		FLAT GAP		20	0-55	Systems. Silurian is predominantly limestone and shaley imestone. See Tennessee Division Geology Bulletin 56 for
			ROSS		45	0-110	complete description.
	SILURIAN		DECATUR BROWNSPORT		VARIABLE	0-250	SEQUATCHIE FORMATION: Greenish gray, massive muditione with some sand, shale, and timestone. Contains Mannie Shale Facies which is a green calcareous shale that weathers into laminated cobbles of green allt. Outcrops mostly in Lincoin, Franklin, and Marion Counties. Contains Fernyale Limestone Facies, which is an irregular bedded
] 	WAYNE	BRASSFIELD				massive limestone containing enough timonite to be a low grade fron ore. LEIPERS FORMATION: Dark blue gray, earthy, nodular
			SEQUATCHIE		55	0-275	limestone. Thin beds of limestone separated by shale mudstone and silistone beds from a lew inches to 10 feet thick. Weathers to light brown siliy clay soil 3 to 5 feet thick. Weathering along fractures and faults can penetrate 20 feet into rock mass. Outcrops mostly along edge of Central Basin.
		MAYSVILLE	LEIPERS		70	0-160	INMAN FORMATION: Greenish gray calcareous shale interbedded with thin beds of dense limestone. Weathers to thin clay soll. Outcrops in southeastern part of Middle Tennessee is a very restricted outcrop bell.
_		EDEN	INMAN		50	0-70	CATHEYS FORMATION: A complex mixture of shaley impessione units. Typically it is thin bedded, blue gray nodular limestone interbedded with thin partings of shale and
=							pilistone. Weathers to thin sitty clay soil usually 3 to 4 feet thick. Outcrops extensively in Central Basin. BIGBY CANNON LIMESTONE: Composed of 3 facies; (1)
			CATHEYS		130	10-250	the Bigby facies is blue gray, massive, granular, cross bedded, and phosphatic. (2) Dove facies is a light gray (Dove colored) dense tine grained limestone. (3) Carinon facies is blue gray limestone, massive but non-phosphatic. All lacies weather to reddish-brown clay usually less than 10 feet thick. Some sinkhole development and considerable deep weathering along vertical fractures. Outcrops in Central
	IAN	NASHVILLE	BIGBY CANNON		80	50-100	Basin. Mined for phosphate in several counties of Central Basin, MERMITAGE FORMATION: Variable rock units consisting of thin-bedded, dark blue-gray shaley limeatone and sandy limeatone in northwest part of Central Basin. Persistent layer of shale and phosphatic shale in central part of Central Basin.
	ORDOVICIAN		HERMITAGE	30.5%	120	70-180	Sithy shale and nodular imestone in south part of Central Basin. Weathers to a sitly and sandy clay up to 20 leet thick. Outcrops extensively in Central Basin. CARTERS LIMESTONE: Contains upper and Lower member separated by T ² bentontite clay. Upper member is thin bedded, light gray shaley limestone about 10 teet thick. Lower member is massive, light gray, tine grained timestone about 50 teet thick and contains T ² and T ³ bentontite clays about 50 teet thick with some
			CARTERS		60	37-93	sink holes. Outcrops extensively in Central Basin, LEBANON LIMESTONE: Blue-gray, dense, fine-grained, thin-bedded limestone. Bedding planes contain thin shale layers, weathers to loose stabs of limestone with very little residual soil. Forms cedar glades and has worm-caten
- 1							

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United States Department of the Interior

DAS 3125 File 50A-426

SHP-2/23/

GEOLOGICAL SURVEY
Water Resources Division
Tennessee District

A-413 Federal Bldg. U.S. Courthouse Nashville, TN 37203 February 19, 1987

Mr. Todd Hughes
Tennessee Department of Health
and Environment
Customs House - 4th Floor
701 Broadway
Nashville, TN 37219-5403

94-508 (1)

Dear Todd:

We have completed observation well installations and logging for the Genesco Hazardous Waste Site Investigation. Enclosed please find tables of data on the new wells and a sample resistivity log. We are completing a first draft of a basic data report on the site study, but we thought that both you and Geraghty and Miller would like to have preliminary copies of this data. If you approve, let me know and I'll route copies to Don Brice of Geraghty and Miller.

Sincerely yours,

FOR THE DISTRICT CHARLE

Roger W. Lee

Enclosure

WM:N-058 WM:N-058A	WM: N-055A WM: N-056 WM: N-056A WM: N-057 WM: N-057A	WM: N-053 1 N-053A WM: N-054A WM: N-055	KM: N-050A WM: N-051 WM: N-051A WM: N-052A	WM: N-047 WM: N-047A WM: N-048 WM: N-048A WM: N-050	W: N-044A WM: N-045 WM: N-045A WM: N-046A WM: N-046A	WM: N-042 WM: N-042A WM: N-043 	WM: N-038 WM: N-039 WM: N-040 WM: N-041	WM: N-020 WM: N-022 WM: N-023 WM: N-024 WM: N-033	IOCAL WELL NUMBER
355711 355711	355714 355729 355729 355713 355713	35556 355654 355710 357110	355748 355745 355745 355715 35715	3555738 355733 355733 55733	3537 355723 355723 355732	355701 355701 355720 355720 353718	3557 3557 355712 355723 355700	3558 355805 355756 355724 355707	LATITUDE (DEGREES)
0864631 0864631	0864545 0864618 0864618 0864552 0864552	0864550 0864550 0864541 0864541 0864545	0864551 0864601 0864601 0864621 0864621	0864551 0864551 0864540 0864540 0864551	0864610 0864533 0864532 0864602 0864602	0864557 0864557 0864606 0864606 0864610	0864431 0864539 0864614 0864544 0864544	0864626 0864627 0864625 0864617 0864509	LONGITUDE (DEGREES)
760 760	758.6 775 775 795 795	795.8 798.4 759.8 760.3 757.8	786.8 754.1 754.8 791.8 792.9	762.4 759.9 806.4 808.8 785.9	738.8 812.6 812.6 758.0 758.7	754.0 753.8 737.6 738.4 744.1	890 766.9 780.1 780.1	740 710 720 750 830	ALTITUDE OF LAND SURFACE (FEET)
01-08-87 01-09-87	10-13-86 01-09-87 01-12-87 01-07-87 01-08-87	07-08-86 09-24-86 07-10-86 10-13-86 07-11-86	10-08-86 07-05-86 10-08-86 07-07-86 10-06-86	07-01-86 10-09-86 07-01-86 10-10-86 07-04-86	10-07-86 06-26-86 10-10-86 06-30-86 10-09-86	06-23-86 09-22-86 06-24-86 10-07-86 06-25-86	11-03-78 06-23-86 09-23-86	10-18-84 05-01-81 08-14-85 06-27-84 08-17-74	DATE WELL CONSTRUCTED
35.0 165	177 45.0 175 57.0 204	55.0 203 30.0 139 30.0	162 25.0 137 35.0 132	20.0 162 45.0 152 45.0	102 49.0 167 30.0	35.0 193 28.0 102 34.1	175 220 350 45.0 225	350 158 1050 240 150	DEPTH OF WELL, (FEET)

1 ե

WM:N-058 WM:N-058A	WM: N-055A WM: N-056A WM: N-056A WM: N-057A	WM: N-053 WM: N-054 WM: N-054 WM: N-055	WM: N-050A WM: N-051 WM: N-051A WM: N-052A	WM: N-047 WM: N-047A WM: N-048 WM: N-048A WM: N-050	WM: N-044A WM: N-045 WM: N-045A WM: N-046 WM: N-046A	WM: N-042 WM: N-042A WM: N-043 M: N-043A	WM: N-038 WM: N-040 WM: N-041 WM: N-041A	WM: N-020 WM: N-022 WM: N-023 WM: N-024 WM: N-033	LOCAL WELL NUMBER
760 760	177 775 795 795	55.0 203 30.0 139 30.0	162 25.0 137 35.0	162 162 152 0 152 0	102 49.0 167 30.0	35.0 193.0 102.0 34.1	175 220 350 45.0 225	350 158 1050 240 150	DEPTH OF WELL (FEET)
12.5 35.0	26.0 20.0 67.0 9.0 57.0	10.0 41.0 4.50 32.0 5.80	55.0 8.70 34.0 19.5 33.0	3.10 17.0 6.00 41.0 10.0	20.0 59.0 4.50 15.0	10.7 34.0 5.00 15.0	20.0 10.0 62.0	21.0 20.0 21.0	BOTTOM OF CASING (FEET)
02-05-87 02-05-87	02-05-87 02-05-87 02-05-87 02-05-87 02-05-87	02-05-87 02-05-87 02-05-87 02-05-87 02-05-87	02-05-87 02-05-87 02-05-87 02-05-87 02-05-87	02-05-87 02-05-87 02-05-87 02-05-87	02-05-87 02-05-87 02-05-87 02-05-87 02-05-87	02-05-87 02-05-87 02-05-87 02-05-87 02-05-87 02-05-87	02-05-87 02-05-87		WATER- LEVEL DATE
16.51 16.97	18.03 22.54 113.29 50.74	35.09 63.79 2.69 17.85 14.32	80.82 11.63 36.46 19.50 57.94	5.92 35.83 71.81 11.70	9.57 30.94 71.46 4.98 29.57	16.06 15.76 25.53 9.27 10.06	10.05	11111	WATER LEVEL (FEET)
	(md surface.	Main-057 15 a			sarface.	WIL referenced to depth below hard	NO W/C Duta Obtamil	ovo ans domstre velle.	040. N:W.

12.7

TABLE 1 CONSTRUCTION & STATUS OF COMESTIC WELLS

WELL CANER	COMPLETED	CASING ULAM. (IN)	DEPTH OF CASING (FT)	TOTAL DEPTH (FT)	OPEN INTERVAL FORMATION	PRINCIPLE WATER BEARING ZONE (DEPTH FT)	SUMTE	ORTLIER	LER.
Allen				68-80			Residential		Z
Bever	04/05/69	7	20	200	B,H,C	195	Residential		Ö
Boswell	08/14/85	6.25	20	1050	н, , L, R, P, М, К	1020	Residential	Henry Drilling Co.	
	10/18/84	6.25	21	350	II,C,L	277	Residential	Henry Drilling Co.	
Denny	06/27/84	6.25	21	240	H,C,L	70,110	Residential	Henry Drilling Co.	
Fischer (1)	00/21/04	0.13		200	H,C,L	115-117	Residential.	Henry Drilling Co.	
Fletcher (1)				198	H,C,L	23, 115-116	Pesidential	Henry Drilling Co.	
Fletcher (2)	08/08/85	6.25	20	260	H,C,L	146	Heat Pump	Henry Duilling Co.	
Foster (1) Foster (2)	05/22/84	6.25	21	450	H,C,L,R	230	Residential	Henry Drilling Co.	
Gore (2)	06/04/70	6	20	75	11	65	Residential	-	
Holt	00/04/70	6	25	36	В	36	Residential		
Hall	03/03/86	6.25	24	400	H,C,L	80	Residential	Henry Drilling Co.	
	03/03/80	0.23		220	H,C,L	130	Residential	•	
liowe	12/30/72	6	20	198	H,C	184	Residential		
Johnson	08/17/74	6	22	1235	H,C,I,R,P,M,K	1170	Residential		
Levine (1)	08/17/74	Ü	22	2200	H,C,L,R,P,M,K	4.4.4	1.20-11.		
Levine (2)				73	11	18	Residential		
Myatt				,,	••	28	Residential		
Legieza				350	H,C,L,R	112	Non-Potable		
Mallory	00/36/03	c 25	21	105	H,C	105	Residential	Herman Clark Water Wel	lls
Pewitt	09/16/81	6.25	21	103	11,0	28	Residential		
Sullivan	00.400.404	c 25	21	200	B U C	160	Residential	Henry Drilling @.	
Wilson	02/28/84	6.25	21	260	B,H,C	100	14:210:CHC1GE	india, personal con-	

B = Bigby-Cannon Formation H = Hermitage Formation C = Carters Formation

R = Ridley Formation P = Pierce Formation

M = Murfreesboro Formation

L - Lebanon Formation K = Knox Group

Information Provided by TDME, Division of Ground Water Protection.

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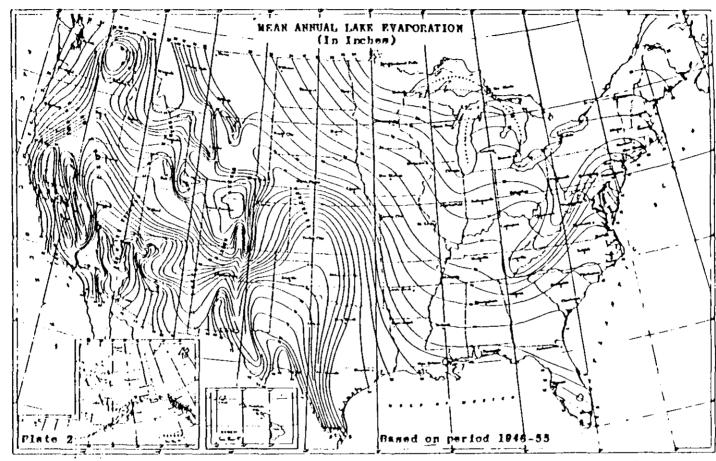
Uncontrolled Hazardous Waste Site Ranking System

A Users Manual (HW-10)

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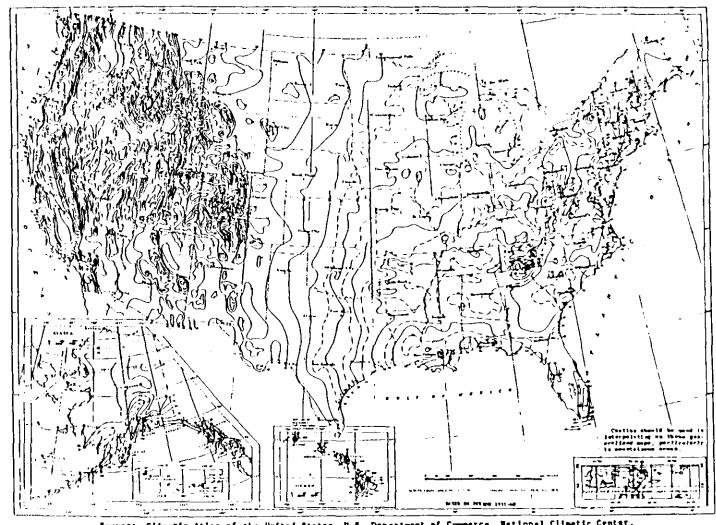
Originally Published in the July 16, 1982, Federal Register

United States Environmental Protection Agency



Source: Climatic Atlas of the United States, U.S. Department of Commerce, National Climatic Center, Ashville, N.C., 1979.

FIGURE 4
MEAN ANNUAL LAKE EVAPORATION
(IN INCHES)



Source: Climetic Atlay of the United States, U.S. Department of Commerce, Bational Climatic Center

FIGURE 5
NORMAL ANNUAL TOTAL PRECIPITATION (INCHES)

TABLE 2

PERMEABILITY OF GEOLOGIC MATERIALS. LOOK at least permeable layer

Type of Material	Approximate kange of Bydraulic Conductivity	Ansigned Value
Clay, compact till, shale; unfractured metamorphic and igneous rocks	<10 ⁻⁷ cm/sec	o (improvedble)
Silt, loess, silty clays, silty loams, clay loams; less permaable limestone, dolomites, and sandstone; moderately permaable till	10 ⁻⁵ ~ 10 ⁻⁷ cm/sec	1
Pine sand and silty sand; sandy losms; losmy sands; moderately permeable limestone, dolomites, and sandstone (no karst); moderately fractured igneous and metamorphic rocks, some coarse till	10 ⁻³ ~ 10 ⁻⁵ cm/sec	2
Gravel, sand; highly fractured igneous and metsmorphic rocks; permeable basalt and lavas; karst limestone and dolomite	>10 ⁻³ cm/sec	3

*Derived from:

Davis, S. N., Porosity and Permeability of Natural Materials in Flow-Through Porous Media, R.J.M. DeWest ed., Academic Press, New York, 1969

Preeze, R.A. and J.A. Cherry, Groundwater, Prentice-Hall, Inc., New York, 1979

inventory of substances in a facility is known, only those present in amounts greater than the reportable quantity (see CERCLA Section 102 for definition) may be evaluated.

Toxicity and Persistence have been combined in the matrix below because of their important relationship. To determine the overall value for this combined factor, evaluate each factor individually as discussed below. Match the individual values assigned with the values in the matrix for the combined rating factor. Evaluate several of the most hazardous substances at the facility independently and enter only the highest score in the matrix on the work sheet.

	Value	for	Pers	istence
Value for Toxicity	0	1	2	3
0 1 2 3	0 3 6 9	0 6 9 12	0 9 12 15	0 12 15 18

Persistence of each hazardous substance is evaluated on its biodegradability as follows:

Substance	Assigned Value
Easily biodegradable compounds	o
Straight chain hydrocarbons	1
Substituted and other ring compounds	2
Metals, polycyclic compounds and halogenated hydrocarbons	3

more specific information is given in Tables 4 and 5.

...

Toxicity of each hazardous substance being evaluated is given a value using the rating scheme of Sax (Table 6) or the National Fire Protection Association (NFPA) (Table 7) and the following guidance:

5 m. 9.	<u>Toxicity</u>		Assigned Val	<u>ue</u>
None Sax	level 0 or NFPA level	. 0	0	
low Sax	level 1 or NFPA level	1	1	≤ 1
XBETTOOM	level 2 or NFPA level	. 2	2	Sex in profesol
highsax	level 3 or NFPA level	3 or 4	3	5 Fd. + 1.0

Table 4 presents values for some common compounds.

Bazardous waste quantity includes all hazardous substances at a

uet persuent when concentration - file of the concentration of the con

Do not include amounts of contaminated soil or water; in such cases, the amount of contaminating hazardous substance may be estimated.

On occasion, it may be necessary to convert data to a common unit to combine them. In such cases, 1 ton = 1 cubic yard = 4 drums and for the purposes of converting bulk storage, 1 drum =

50 gallons. Assign a value as follows:

Tons/Oubic Yards	No. of Drums	Assigned Value
0	0	0
1-10	1-40	ĭ
11-62	41-250	2
63-125	251-500	3
126-250	501-1000	4
251-625	1001-2500	(3)
626-1250	2501-5000	6
1251-2500	5001-10,000	7
>2500	>10,000	8

TABLE 4
WASTE CHARACTERISTICS VALUES
FOR SOME COMMON CHEMICALS

			⁵ /#	
CHERT CALL/CONTROUND				
Acetaldabyde	ا د ا	0	3	2
acetic acid	ן ג	0	2	1
<u>Anntime</u>	2	0	3	0
Aldria	را)	2 /	Đ
Americ, Ashydrous	3	0	3	0
aniling	3	1	2	0
hens one	3	1	3	Đ
Carbon Tetrachloride	3	3	0	Đ
Chieriane	١,	3	0-	0-
Chiorebenesse	2	2	,	0
Chloroform	3	נ	0	C
Cresol-0	3	1	2	D
Craso)-HL?	ן נ	1	1	0
Cyclohezana	2	2	3	0
ladria .	3	3	1	0
Ethyl Benzone	. 2	1	3	0
Pormaldehyda	د [0	2	D
Pormic acid	٤	D	2	0
Prerochloric Acid	3	0	٥	٥
laopropyl Ethat	3	1	3	1
Lindane	3	3	1	C
lio thane	1	1	ֿנ	0
Nothyl Ethyl Estone	2	٥	,	0
methyl Parathion in Tylene Solution	3	91	ן נ	2
Rephtheleps	1 2	1	2	0
Rittic Acid	3	٥	٥	0
Parathies	3	Ç.A	1	2
ra	3	,	4	2.0
Petrologa, Karpensa - (Puel Dil Bo. 1)	3	1	2	c
Themo]	3	1	2	0
Sulfuric Acid	3	۰۵	0	2
Solumbe	2	1	3	٥
Trichlorobensene	2	3	1	0
ex-Trichlorosthana	2	2	1	٥
Zylana	2	1	3	0

lark, E. L., langurous Proservies of Immerital Betatials, San Bostronc Escinance Lo., New York, and ed., 1975. The highest rating listed under each chemical is used.

²JED Associates, Inc., <u>Nethodology for Rating the Easard Potential of Maste Disposal Sites</u>, Ney 5, 1980.

Rational Fire Protection association, Maximal Fire Cooss, Vol. 13, No. 49, 1977.

^{*}Professional judgment based on information contained in the D.S. Coast Guard CMRIS hazardous Chemical Data, 1978.

[&]amp; Professional judgment based on existing literature.

PERSISTENCE (BIODEGRADABILITY) OF SOME ORGANIC COMPOUNDS*

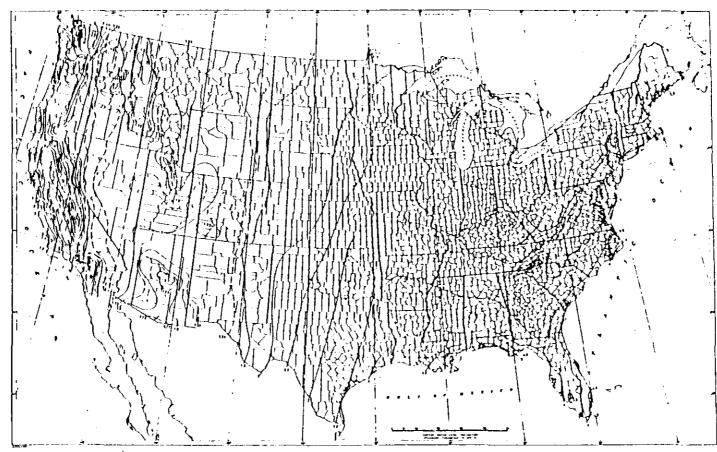
VALUE - 3	HIGHLY PRASISTENT CONTOUNDS
eldrin	hoptochlor
benzapyrene	heptachlor sporter
benzathterale	1,2,3,4,5,7,7-heptachloronorhornen
hanzoihtophana	hazachintobentena
benzyl hutyl phihatota	heasthloro-1,3-husediene
bromochlorobenzene	hazachlorocyclohoxane
bromiform butanel	herachiocoethana
bromophenyl phyntl athar	methyl beneothisznie
chtordese	pantachlorobiphenyl
chinsubydrosy bansaphanone	peaturblorophenol
his-chintoleopenphyl other	1,1,3,3-tetrachloroscetone
m-chintonitrobussana	tetrachlorobiphonyl
PDE	thiomethylhencothianole
THIT	trichlorobensens
dibromobensons	trich)orobiphmayl
dibutyl phthalata	trichiprofluoromethene
I, 4-Alchiornhensens	2,4,6-trichlorophenol
dichinrodifiuornathana	teiphenyl phosphata
dfeldiin	broandichloromathena
diethyl phthaloga	bromoform
d1(2-athy1hawp1)phthalata	carbon tetrachloride
dihenyi phthelete	ehloroform
di-fambutyi phtheista	chlarownchlarowathune
dimethyl phthulate	dibrowedichinroathana
4,6-dinitro-2 mainophenol	tetrachloroethane
diproppl phthalata	1,1,7-trichloroethere
andria	

	AT PERSISTENT CONFOUNDS
scatylana dichiorida	limonene
hahanic acid, methyl aatar hansena	mathyl enter of lignocaric eth
bentens sulfonte actd	2-methyl-3-ethyl-pytidine -
butyl bengane .	mathyl maghthalona
butyl browlds	methyl palmitate
e-caprolectes	methyl phenyl carbinol
carbon-disulfida	mothyl stearsts
o-creen1	nephthelene
derane	ROBARA
1,1-dichlorosthans	ortena
1.2-dimathory bensame	octyl chlorida
1,3-dimethyl maphthslens	pentana
1,4-disathyl phenel	phonyl bonzosta
dioctyl adipate	phthelic anhydrida
n-dodecane	propylbenzene
ethel benzene	1-terpineol
7-ethyl-s-hazana	toluene
n-ethyltolumne	vinyl bensene
Leodecana	zylene
Isoprophyl benzene	•

VALUE - 2 PERSISTENT COMPOUNDS		
acenophthylana	cls=2-athyl-4-methyl-1,3-dioxoless	
atresina	trums-2-ethyl-4-methyl-1,3-dioxolam	
(disthyl) strazine	gusiacol	
bachical	2-hydroxyadiponitriia	
borner1	leopherone	
henmohanzona	Indene	
emphor	fenbarasol	
chingabensens	langrapenyl-r-langrapyl benkana	
1,2-bie-chingouthous athens	2-mathory biphanyl	
bechlornothyl mothyl ather	methyl blphenyl	
chloromethyl ather	mothyl chloride	
chintowethyl ethyl ether	methyl indene	
3 chloropyridins	methylane chlorida	
dt-t-butyl-p-lientnquinone	nitrosnisole	
dichiermethyl ather	nitrohensene	
dthyracarvons	1,1,2-trichlorouthyluna	
disathel sulforfds	trimathyl-trinxo-hosebydro-trissine	
2.6-dinitrotaluene	letter	

VALUE - 0 PONTERSISTENT CONFOUNDS	
acetaldahyda	methyl benzonts
eretle meid	3-methyl butenol
acatona	methyl ethyl ketone
acetophenoae	2-methylyropanol
bensole ecid	octadecene
di-techutyl cerbinol	pont adec one
decesare	pentenol
elcosese.	ptopuso1
ethenal	propylamics
othylomina	tetraŝecana
heradecana	a-tridecone
ne t hano l	a-underane

ţJ



Routce: Reinfell Frequency Atlas of the United States, Technical Paper No. 40, U.S. Department of Commerce, U.S. Government Printing Office, Vashington, D.C., 1963.

FIGURE 8 1-YEAR 24-HOUR RAINFALL (INCHES)

DRAF

Table I is the listing of EPA Hazard Ranking System (HRS) Waste Characteristics Values (Toxicity/Persistence matrix) used by the NPL quality assurance team. These rating factor values are based on the criteria specified in the HRS (toxicity rating assigned to each substance in Sax, Dangerous Properties of Industrial Chemicals, 4th, 5th and 6th editions). The listing shows the matrix values for ground water and surface water and the toxicity value for air. The values shown are "post multiplier" for use on the HRS worksheets. Changes to this list are made, albeit infrequently, as a result of response to public comment and changes in the reference material. Questions should be directed to the NPL quality assurance team via Mr. Steve Caldwell, EPA Headquarters, (202) 475-8103.

TABLE I

EPA Hazard Ranking System Waste Characteristics Values
(Toxicity/Persistence Matrix)

	Ground Water and Surface Water	Air Pathway
Chemical/Compound	Pathway Values	Values
Acenapthene	9	3
Acetaldehyde	6	6
Acetic Acid	6	6
Acetone	6	6
2-Acetylaminoflourene	18	9 ,
Aldrin	18	9
Ammonia ,	9	9
Aniline	12 .	9
Anthracene /	15	9
Arsenic	18	9
Arsenic Acid	18	9
Arsenic Trioxide	18	9
Asbestos	15	9
Barium	18	9
Benzene	12	9
Benzičine	28	Ç.
Denzoapyrene	18	ð ð ð ð
Benzopyrene, NOS	18	9
Beryllium & Compounds NOS	18	9
Beryllium Dust, NOS	18	9
Pis (2-Chloroethyl)		•
Ether	15	9
Bis (2-Ethylhexyl		
Phthalate	12 15	3
Bromodichloromethane		. 6
Bromoform	<u>1</u> 5	6
Bromomethane	25	9
	•	
Cadmium	18 16	9 0 0
Carbon Tetrachloride		9
Chlordane	18	9 ,
Chlorobensene	≟. ∸	б
Chloroform -	<u> </u>	6 €
3-Chlorophenol	<u></u>	
4-Chlorophenol	12	9 6
2-Chlorophenol Chromium	- <u>-2</u> <u>18</u>	9
Chromium, Hexavalent	20	7
(Cr+6)	18	9
	≟ 0	7

Table I (cont.)

Chemical/Compound	Ground Water and Surface Water Pathway Values	Air Pathway Values
Chromium, Trivalent (Cr ⁺³)	15	6
Copper & Compounds,		-
NOS	18 15	9 6
Creosote	_ -	6
Cresols	9 12	9
4-Cresol		9
Cupric chloride	18	9
Cyanides (soluble salts), NOS ,	12	9
	12	6
Cyclohexane	12	· ·
DDE	18	9
DDT	18	9
Diaminotoluene	18	6
Dibromochloromethane	<u> </u>	6
1. 2-Dibromo, 3-		
chloropropane	(18	9
Di-N-Butyl-Phthalate	≥ 12.	6
1, 4-Dichlorobenzene	35 14	б
Dichlorobenzene, NOS	28	6
l, l-Dichloroethane	12	6
1, 2-Dichloroethane	16 12 12	9
l, l-Dichloroethene	15	9
1, 2-cis-Dichloro-		
ethylene	12	3
1, 2-trans-Dichloro-		•
ethylene	12	3 3
Dichloroethylene, NOS	12	
2, 4-Dichlorophenol	18	6
2, 4-Dichlorophenoryaceti		0
Acid	18 3.0	ס, ס, ס, ס,
Dicyclopentadiene Dieldrin	_0 12	2
2, 4-Dimitrotoluene	18 18 15	9
Dioxin	18	وَ
220422	±0	7
Endosulfan	18	9
Endrin	18	. 9
Ethylbensene	9	6
Ethylene Dibromide	28	9
Ethylene Glycol	9	6
Ethyl Ether	15 12	3
Ethylmethacrylate	12	* 6
•		

Table I (cont.)

Chemical/Compound	Ground Water and Surface Water Pathway Values	Air Pathway Values
Fluorine	18	9 9
Formaldehyde	9	
Formic Acid	9	6
Heptachlor	18	9
Hexachlorobenzene	15	6
Hexachlorobutadiene	18	9
Hexachlorocyclohexane,	18 .	9
Hexachlorocyclopentadiene	<u> </u>	. 9
Hydrochloric Acid	9	6
Hydrogen Sulfide	18	9
nydlogen bullide	10	,
Indene	12 18	6
Isophorone		
Isopropyl Ether	12 9	6 3
100p10pg1 Teme1	•	J
Relthane	15	6
Kepone	18	9
Lead	18	9
Lindane	18	9
Magnesium & Compounds, NOS	15	6
* Manganese & Compounds,	N. 15	
nos	76 17	9
Mercury	18	9
Mercury Chloride	18	9
Hethorychlor	1 5	6
4, 4-Merhylene-Bis-(2-	- -	_
Unloroaniline)	1.B	9 9
Methylene Chloride	<u>- 2</u>	
Methyl Ethyl Retone	6 12	ę
Hethyl Isobutyl Retone	±4 • 0	Ď
4-Methyl-2-Xitroeniline	12 9	7.
Methyl Parathion		à
2-Methylpyridine	12	י שיטי מימי של
Mirex	28	7

* Subject to EFA HQ approval
NOTE: Iron in mit a CERCLA tuted hazardono was

Table I (cont.)

Chemical/Compound	Ground Water and Surface Water Pathway Values	Air Pathway Values
Naphthalene ** Nickel & Compounds, NOS Nitric Acid	9 28 12 9	6 9 9
Nitroaniline, NCS	18	9
Nitrogen Compounds, NOS	12	0
Nitroguanidine	12	9
Nitrophenol, NOS	15	9
m-Nitrophenol .	15	
o-Nitrophenol'	12 .	
p-Nitrophenol '	15	
Nitrosodiphenylamine	12	6
Parathion	9	9
Pentachlorophenol (PCP)	18	9
Pesticides, NOS	18	9 9
Phenapthrene	15	9
Fnenol	12	9
Phosgene	9	9
Polybrominated Biphenyl		
(PEB), NOS	18	9
Polychlorinated Biphenyls	- 0	•
(PCB), NOS	18 18	9 9
Potassium Chromate	_0	7
Radium & Compounds, NCS	18	9
Radon & Compounds, NOS	25	9
RDX (Cyclonite)	15	
2, 4-D, Salts & Esters	18	9
* Selenium	<i>7</i> 5 12	9
Sevin (Carbaryl)	18	9
Sodium Cyanide	12	9 6
Styrene	12 9 9	6
Sulfate	9	0
Sulfutio Acid	9	9
2, 4, 5-7	18	Ģ
1, 1, 2, 2-Tetrachloro-	•	•
etizza	18	Ş
Tetrachloroethane, NOS	18	0.01
1, 1, 2, 2-Tetrachloro-	resident teatres,	
ethene	12	. 6

* Sulfet to EPA HD approval

Table I (cont.)

		Ground Water and	
		Surface Water	Air Pathway
Che	emical/Compound	Pathway Values	Values
Tet	raethyl Lead	18	9
Tet	rahydrofuran	15	6
The	orium & Compounds, NOS	18	9
Tol	uene	9	6
TNI	[12	
Tox	caphene	18	9
Tri	bromomethane	18	9
	2, 4-Trichlorobenzene	15	6
	3, 5-Trichlorobenzene	15 '	6
	1, 1-Trichlordethane	12	6
•	1, 2-Trichloroethane	15	6
	chloroethane, NOS	15	6
	chloroethene	12	6
1.	l, l-Trichloropropane	12	6
	1, 2-Trichloropropane	12	6
	2, 2-Trichloropropane	12 12 12	6
	2, 3-Trichloropropane	15	9
	•		
Ura	nium & Compounds, NOS	18	9 .
₹	sol	- 2	6
_	yl Chloride	∴∠ • 5	9
1	ya Carte	- -J	
Xyl	ene	9	6
¥⁄Zin	c & Compounds, NOS	No. 12	9
	c Cyanide	18	9

REF.9

:

SOIL SURVEY

Williamson County Tennessee



UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
TENNESSEE AGRICULTURAL EXPERIMENT STATION

Series 1961, No. 5

Issued August 1964

easy to work and are suited to all commonly grown crops

and pasture.

Stiversville silt loam, 5 to 12 percent slopes, eroded [StC2].—This well-drained soil is on the uplands of the outer Central Basin. It has formed from phosphatic sandy limestone interbedded with shale. Small fragments of soft, sandy limestone are generally scattered throughout the soil. The depth to bedrock ranges from about 2 to 5 feet.

Representative profile:

0 to 8 inches, dark-brown, very friable silt loam with granular structure.

8 to 20 inches, reddish-brown or yellowish-brown, friable silty

clay loam with blocky structure.

20 to 40 inches, dark-brown or reddish-brown, friable silty clay from or clay from with blocky structure; common fragments of sandy limestone increase in size and amount with increasing depth.

This soil is medium to high in phosphorus, is medium acid to strongly acid, and is moderate in available moisture capacity. Permeability is moderately rapid to rapid. The soil has a deep root zone and generally is in good tilth.

Nearly all areas of this soil have been cleared, but a considerable acreage is now idle. The soil is easy to work and is suited to many kinds of crops and pasture. Crops grown on it respond to good management, especially to additions of lime. The soil can be cultivated every 3 or 4 years if it is well managed and special practices are used

to control water. (Capability unit IIIe-1)

Stiversville silt loam, 2 to 5 percent slopes, eroded (SiB2).—This deep, well-drained soil is on gently sloping uplands in the eastern half of the county. It has formed from interbedded, phosphatic, sandy limestone and shale and contains highly weathered, sandy fragments in the lower subsoil. The surface layer is dark-brown silt loam, about 8 inches thick. The subsoil is yellowish-brown or reddish-brown silty clay loam or clay loam. In places small fragments of weathered siltstone or sandy limestone are on the surface. A few patches of this soil are severely eroded and have a plow layer of clay loam. Bedrock is at a depth of 215 to 5 feet.

The soil is medium to high in phosphorus, is medium acid to strongly acid, and is moderate to moderately high in available moisture capacity. It is moderately rapid in

permeability.

Many kinds of crops and pasture are suited to this soil. It is easy to work and to conserve and can be used moder-

ately intensively. (Capability unit IIe-1)

Stiversville silt loam, 12 to 20 percent slopes, eroded (StD2).—This phosphatic soil is on short slopes of rolling hills. The surface layer of brown or dark-brown silt loam is about 4 to 6 inches thick and is underlain by a subsoil of yellowish-brown or reddish-brown silty clay loam or clay loam. In most places a few fragments of weathered siltstone or sandy limestone are on the surface. These sandy fragments are more common in the lower subsoil. Bedrock is generally at a depth of 246 to 5 feet.

The soil is medium to high in phosphorus and is medium acid to strongly acid. It has a moderate to moderately low available moisture capacity. Permeability is moderately

rapid to rapid.

Nearly all of this soil has been cleared and cultivated. Most of it is now used for pasture, but a considerable acreage is used for crops. Although the soil is suited to all common crops, it is too sloping for frequent cultivation. Plants respond especially well if lime is added to the soil.

(Capability unit IVe-1)

Stiversville clay loam, 5 to 12 percent slopes, severely eroded [SrC3].—This soil has a surface layer of brown or yellowish-brown clay loam, 3 to 5 inches thick. Most of this layer is yellowish-brown or reddish-brown silty clay loam or clay loam from the subsoil. In most places fragments of weathered siltstone or sandy limestone are on the surface. Many shallow gullies or a few deep ones are common, and in places there are a few outcrops of bedrock. The average depth to bedrock, however, is between 2 and 4 feet.

This soil is medium to high in phosphorus and is medium acid to strongly acid. Although not especially droughty, the soil is generally in poor tilth. Because of the fine-textured surface layer and the strong slopes, further crosion is likely and frequent cultivation is not practical. With careful management that includes intensive conservation practices, the soil can be cultivated every 4 or 5 years. It is fairly well suited to the commonly grown crops and pasture. Crops respond to good management, especially to additions of lime and nitrogen. (Capability

unit IVe-1)

Stiversville clay loam, 12 to 20 percent slopes, severely eroded (ScD3).—This severely eroded, phosphatic soil is on strongly sloping uplands of the outer Central Basin. The surface layer is brown or yellowish-brown clay loam. This layer is 3 to 5 inches thick and consists mostly of yellowish-brown or reddish-brown silty clay loam or clay loam from the subsoil. Many shallow gullies or a few deep ones are common. In most places fragments of weathered siltstone or sandy limestone, 15 to 3 inches across, are on the surface. These sandy fragments generally are throughout the soil and increase in size and amount with increasing depth. Bedrock of phosphatic sandy limestone is at a depth of 2 to 4 feet.

The soil has lost much of its natural fertility and most of its organic matter. It has low available moisture

capacity.

All of this soil has been cleared and cultivated. About 25 percent of the acreage is still in crops, 50 percent is in pasture, and 25 percent is idle or is in sparse stands of trees. Because of the fine-textured surface layer and steep slopes, runoff is rapid and the hazard of further erosion is great. Therefore, the soil is best suited to permanent pasture or hay. (Capability unit VI&1)

Sulphura Series

In the Sulphura series are steep soils on high hills and knobs. These soils have developed in residuum of shale, which in most places is mantled by 2 to 14 inches of cherry

creep that drifted down from higher soils.

Sulphura soils have a surface layer of dark grayishbrown cherty silt loam about 6 inches thick, and a subsoil of dark-brown shaly silt loam or shaly silty clay loam. Shale bedrock generally is at a depth of 18 to 24 inches, but it crops out on the steeper slopes. Slopes range from 12 to 50 percent but are generally greater than 20 percent.

These soils are medium acid to strongly acid and low in

available moisture capacity.

The Sulphura soils are between the Bodine soils and Dellrose soils on hillsides. They are below the Bodine

REF. 10

: : :



City of Brentwood

P.O. BOX 788, 116 WILSON PIKE

BRENTWOOD, TENNESSEE 37027

TELEPHONE (615) 373-3011 371-0060

T. MACK BLACKBURN MAYOR PHILLIP HARDEMAN VICE MAYOR FRANK W. CLIFTON, JR. CITY MANAGER

February 19, 1986

COMMISSIONERS
T MACK BLACKBURN
PHILLIP HARDEMAN
HAROLD J. McMURTRY
BRIAN J. SWEENEY
RICHARD L. VAUGHN

Mr. Donald Shackleford Tennessee Department of Health and Environment 701 Broadway, 4th floor Customs House Nashville, TN 37219-5403

Dear Mr. Shackleford:

Based on our previous conversations and our meeting with Dr. Bruner and Mayor Blackburn, the following cost estimates are provided:

Alternative 1

6" Ductile Iron Pipe from Alamo Drive to the intersection of Split Log Road and Wilson Pike and east on Split Log Road to the existing city limits and south on Wilson Pike to the existing city limits.

	L.F. of 6" DI Pipe at \$14/LF	\$	238,000
3 <i>7</i>	6" Gate Valves at \$400 each		14,800
24	Fire Hydrants at \$1,100 each		26,400
	Railroad Crossing (Tunnelled)		20,000
	Pavement Repairs 300 LF at \$12/LF		3,600
	Crushed Stone 8,000 LF at \$1/LF		a,000
	Meters/Boxes 25 at \$200 each		5,000
	Service Lines 625 LF at S4/LF		2,500
	Engineering (6%)		19,100
	Inspection (4%)		12,700
	Contingency (10%)		31,400
	Total Estimated Cost	S	382,000

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Mr. Donald Shackleford February 19, 1986 Page two

Alternative 2

Instead of 6" Ductile Iron Pipe use Class 200 PVC Pipe at an estimated cost of \$7/LF instead of \$14/LF for Ductile Iron. All other factors remain the same, a savings of \$119,000 is realized. Total revised project cost will be \$263,000.

Alternative 3

Replacing the proposed minimum 6" Ductile Iron Pipe with a 12" Ductile Iron Pipe to provide adequate water supply for future growth. A revised cost estimate is as follows:

16,000 L.F. of 12" Ductile Iron Pipe at \$28/LF	
500 L.F. of 6" Ductile Iron Pipe at \$14/LF	7,000
12" Gate Valves13 at \$900 each	11.700
6" Gate Valves24 at \$400 each	9,600
Fire Hydrants24 at \$1,100 each	26,400
Railroad Crossing (Tunnelled)	20,000
Pavement Repairs300 L.F. at \$12/LF	3,600
Crushed Stone8,000 L.F. at \$1/LF	8,000
Meters/Boxes25 at \$200 each	5,000
Service Lines 625 L.F. at \$4/LF	2,500
Engineering (6%)	33,400
Inspection (4%)	22,300
Contingency (10%)	55,700

Total Estimated Cost \$ 668,000

Alternative 4

Instead of 12" Ductile Iron Pipe Use Class 200 PVC Pipe at an estimated cost of \$14/LF instead of \$28/LF for Ductile Iron. All other factors remain consistent, a savings of \$227,500 is realized. Total revised project cost will be \$440,500.

In addition to one of the above options the City will be required to bring a second feeder line into the new proposed line. This second feeder will come down Wilson Pike from Concord Road to the new connection off of Alamo Drive. The approximate length of this additional line is estimated to be 4,500 L.F. This second feeder line will cost additionally above alternatives 1-4 (depending on the option selected) as follows:

Mr. Donald Shackleford February 19, 1986 Page three

_	6"	Ductile Iron Pipe	\$ 97,000
_	6"	Class 200 PVC	64,800
_	12"	Ductile Iron Pipe	180,000
_	12"	Class 200 PVC	115,600

Summarizing

To effectively get a reliable source of public water to area in question would cost a minimum of \$327,800 and under the most desirable conditions, using 12" PVC Class 200 Pipe, \$556,500. These estimates would be subject to actual bids.

If Class 200 PVC Pipe is allowable under these conditions, I feel the City would want to install the 12" line as a minimum, understanding that the City would have to pick up the cost difference between the 12" and 6" pipe and the second feeder to the area in question.

Based on the above calculations, I feel a reasonable estimate of cost sharing on this project would be:

· -	Sources and/or Pollution Offenders	293,100 263,000
	Total Estimated Cost	\$ 556,100

Please recognize that these figures include no cost for right-of-way acquisition or condemnation expenses.

This information is being provided the Brentwood City Commission for their review and knowledge. We will await further contact from your office with regards to proceeding with any additional action.

Respectfully,

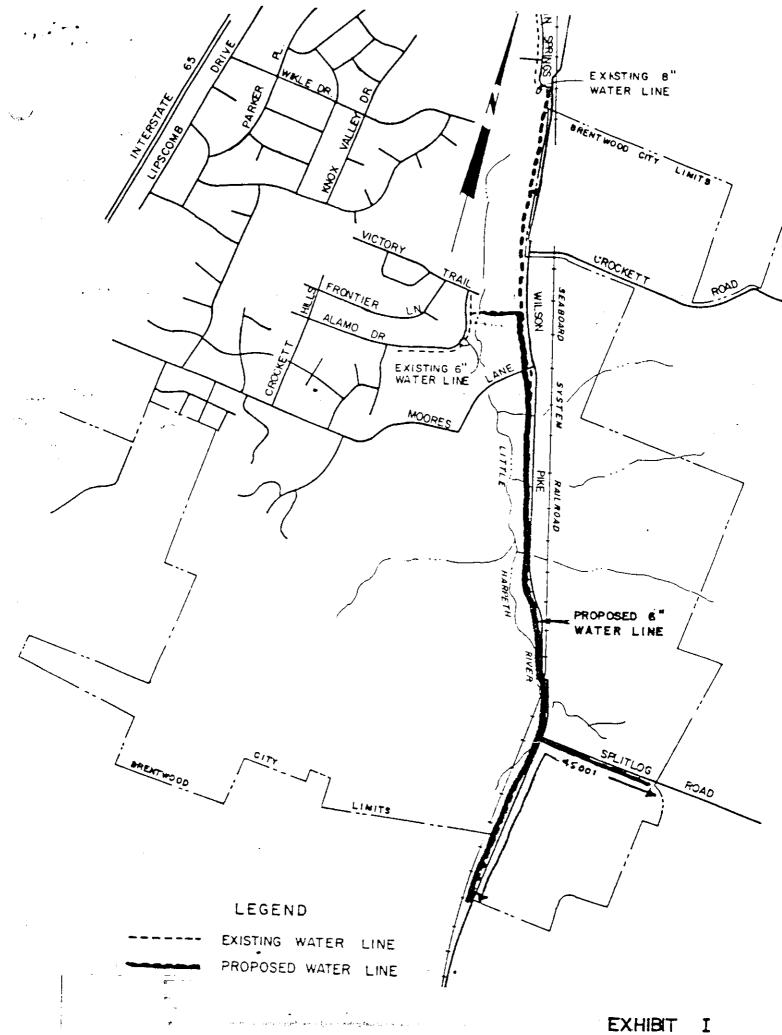
rank W. Clifton, Jr.

City Manader

cc: Mayor and City Commission

City Attorney Robert H. Jennings, Jr.

FWC:NS



KEEII

GENESCO

JG2 8/4 AUB 011936 CHP-5/5

Employee and Environmental Safety

Mr. Frank W. Clifton, Jr. City Manager City of Brentwood P.O. Box 788 Brentwood, TN 37027

RE: SERVICE CONNECTIONS

July 28, 1986

Dear Frank:

As we discussed with you and with John Grissom, an estimate of the cost of each service connection prior to installation would probably be the best method of insuring we are in agreement of the costs involved.

To facilitate the cost estimates, we asked Bill Griggs of Barge, Waggoner, Sumner and Cannon, to meet with John Grissom, Manager of Water Service of the City of Brentwood, to estimate distances and size of service line needed, etc. Attached is his report.

Bill's basic assumption on sizes, etc. was to assume that your storage tank would be 50% full, a residual pressure of 20 psi would be maintained, and that 10 GPM would be adequate for each residence.

There are questions we have involving three service connections that we would like to ask either John Grissom or the contractor to clarify:

It would appear to be much more cost effective to combine the service lines to the three residences on the Sharp property, and to extend the service connection to Mr. Reese Smith's house back down the hill to connect to Woodrow Shaw's residence (Mr. Smith's tenant). If a common service line is not applicable, we would still prefer a common trench.

If you could have someone clarify this before we proceed further, it would expedite the cost estimating process.

As quickly as the cost estimates are submitted, we will have a prompt review, so we could proceed without undue delay.

Genesco Inc. Genesco Park Nashville TN 37202 Mr. Frank W. Clifton July 28, 1986 Page two

Thank you for your assistance.

Sincerely,

Ralph E. Mosely

Director

Employee and Environmental Safety

RM/bb

cc: Mr. John Grissom - City of Brentwood

Mr. Bill Griggs - Barge, Waggoner, Sumner & Cannon

Mr. Don Shackelford - Tennessee Dept. of Health & Environment

MILE RADIAN (1)
STATE 3/13/87
Charles Bours - Superfield Fled Coordinates

RECOMPENDED SERVICE LINE SIZES BRENIWOOD WATER LINE FILE 9035

	Name	Milress	Parcel	Elev.	Estimated Dist. from Road, Ft.	Service Line Size, In.	Available CFM	Pemarks
•	2		54-39.15	730	200	3/4	13	
			54-39.14	720	400	3/4	10	
			54-39.13	720	200	3/4	14	
			54-39.11	725	175	3/4	14	
			54-39.10	725	175	3/4	14	
				730	150	3/4	15	
				730	300	3/4	10	
١				750	600	1	14	1
				750	600	1	14	
			54-39.04	760	600	1	13	
			54-39.05	770	600	1	12	
			54-42.01	760	200	3/4	11	-
			54-42.02	760	500	1	15	
1			54-40	760	600	1	14	
	· .		54-40	820	2,000	2	25	
			54-40	780	1,800	1-1/2	18	
		1603	61-5	830	1,500	2	25	

John Orisson was unsure of exact location. In less head loss through meter, minimal loss through 12" main, tank 50% full, and 20 psi residual pressure.

Name	Milress	Parcel	Elev.	Estimated Dist. from Road, Ft.	Service Line Size, In.	Available GPM	Remarks
		61-5	830	1,700	2	23	
		61–5	810	1,200	1-1/2	17	2
			770	250	1	20	
			780	250	1	19	
			765	600	1	13	
			760	200	3/4	11	
			7 90	400	1	13	
			785	400	1	14	
			790	700	1	10	
			800	150	3/4	10	
			825	600	1-1/2	20	
			765	500 ⁴	1	14	
			790	400	1	13	
			720	600	1	16	

²Served from Split Log Road. ³Includes head loss through meter, minimal loss through 12" main, tank 50% full, and 20 psi residual pressure. ⁴No existing house, assumed distance.

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TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT

OFFICE CORRESPONDENCE

DATE:

March 6, 1987

TO:

SIU Files - Kennon Site (Genesco)

FROM:

Thomas A. Moss, DSF

Jam

SUBJECT: Details of Conversation - pertinent site information.

On March 6, 1987 at 7:30 a.m., Thomas A. Moss of the Superfund Division contacted Ronnie L. Bowers of the Superfund Division regarding the Kennon Site (Genesco) sample results, water use.

FROM

TO

DATE

Details of conversation:

The first set of results at the Mallory Well and Fletcher Well are suspect. At the first sampling from the tap at the Mallory Well, it was not known that Mallory had used a rubber hose instead of PVC from the well to the tap. The second time, the well was bailed and diethyl phthalate did not show up.

Hackett Spring is the nearest drinking water source to the site. The Little Humpeth is very shallow except for small pools. Mr. Bowers has seen fish in the pools, but has never seen anyone fishing in the 1 1/2 years he has been involved with the site. Glass Creek is intermittent.

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OVERSIZED DOCUMENT

REF.15

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT

OFFICE CORRESPONDENCE

DATE:

March 10, 1987

TO:

SIU Files - Kennon Site (Genesco)

FROM:

Thomas A. Moss, DSF

Jam

SUBJECT: Details of Telecon - pertinent site information.

DATE

TO

FROM

On March 10, 1987 at 7:40 a.m., Thomas A. Moss of the Superfund Division contacted Robin Bowie of the Williamson County Soil Conservation Service by telephone regarding surface and ground water use for irrigation in the area of the Genesco site.

Details of conversation:

Mr. Bowie is familiar with the area where the Genesco site is located. Mr. Bowie stated that to his knowledge, there is no irrigation by wells or streams within 3 miles of the site. $\operatorname{Mr.}$ Bowie is sure there is some fishing done by kids in the Little Harpeth River between Split Log Road and Concord Road.

TAM/ib

FROM	DATE
TO	
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REF.16



TENNESSEE WILDLIFE RESOURCES AGENCY

ELLINGTON AGRICULTURAL CENTER F. O. BOX 40747 NASHVILLE, TENNESSEE 37204

December 19, 1985

Mr. Gordon Caruthers
Solid Waste Management Division
Department of Health & Environment
701 Broadway
Nashville, TN 37219

Dear Gordon:

In response to your call of December 19, I am happy to enclose descriptions of critical wildlife habitat of Tennessee, as designated by the U.S. Fish and Wildlife Service.

Please advise if I can be of further assistance.

Sincerely,

TENNESSEE WILDLIFE RESCURCES AGENCY

Robert M. Hatcher, Coordinator Nongame/Endangered Species

RMH/ch enc.

Proposed Rules (Region 4)

(E = Endangered; T = Threatened; CH = Critical Habitat: S/A = Classified under similarity of appearance provision)

SPECIES	LOCATION DET	ERMINATION	FEDERAL REGISTER
Trispot Darter (Etheostoma trisella)	Conasauga River, Coahulla Creek, TN, GA	E, CH	07/13/84
Prickly-ash (Zanthoxylum thomasianum)	PR, VI	Ε	02/11/85
Dismal Swamp Southeastern Snrew (Sorex longirostris fisheri)	VA and NC	Т	07/16/85
Short's Goldenrod (Solidago short)i)	Robertson, Nicholas, Fleming Co., KY	Ē	10/11/84
Key Largo Cotton Mouse and Woodrat	N. Key Largo, FL	СН	02/09/84, 08/31/84, 11/21/84
Prickly Apple Cactus (Cereus eriophorus var. Traprens)	St. Lucie Co., FL	· £	03/05/95
Longspurred Balm (Dicerandra cornutissima)	Marion Co., FL	Ε	
Scrub Baim (Dicerandra frutescens)	Highlands Co., FL	Ε	C3/28/25
Camby's Dropwort (Dxypolis cambyi)	Burke, Lee, Sumter Co., G Scotland Co., NC: Bamberg Colleton Co., SC: MD	\; <u></u>	03/28/85
Florida Golden Aster (Chrysopsis Floridana)	Hillsborough and Pinellas Counties, FL	Ē	08/05/95
Pondberry (<u>Lindera melissifolia</u>)	AR: Clay Co. MS: Sharkey Co. MO: Ripley Co. NC: Bladen Co. SC: Berkeley Co. SA: Wheeler Co.	Ξ	08/13/25





ENDANGERED AND THREATENED

WILDLIFE AND PLANTS

JULY 20, 1984

50 OFR 17.11 and 17.12

Department of the interior U.S. Flan and Wilclife Service

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Republication of the Lists of **Endangered and Threatened Species**

AGENCY: Fish and Wildlife Service. Interior.

ACTION: Final rule.

summary: The Service republishes the U.S. Lists of Endangered and Threatened Wildlife and Plants. The last complete republication was May 20, 1980 (45 FR 33768-33781). Minor changes, principally in names of the species, are incorporated in this republication.

DATES: This rule is effective on July 27.

ADDRESSES: Comments concerning this republication should be sent to the Associate Director-Federal Assistance, Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C. 20240.

FOR FURTHER INFORMATION CONTACT: Mr. John L. Spinks, Jr., Chief, Office of Endangered Species, U.S. Fish and Wildlife Service, Washington, D.C. 20240 (703/235-2771).

SUPPLEMENTARY INFORMATION:

Background

These lists contain the names of species officially listed as Endangered or Threatened under the Endangered Species Act of 1973, as amended (16) U.S.C. 1531, et seq.) through the date of this republication. The listing regulations promulgated under that Act are found at 50 CFR Part 424 and are under revision to conform to the Endangered Species Act Amendments of 1982 (Pub. L. 97-304, 96 Stat. 1411). The previous compilation of these lists appears in the 1982 edition of the Code of Federal Regulations for Title 50, which was actually issued in early 1963. That compliation was effective through October 1, 1982. This republication of §§ 17.11 and 17.12 incomporates all subsequent changes (i.e., additions, reclassifications, and deletions) published as Final Rules in the Federal Register.

In addition to those changes, the Service has made extensive revisions on some of the entries. Most of these changes reflect current nomenciature. ; The entries for the common and ... scientific names of many plants and ______ animals are amended by adding and among 17 of Title 50 of the Code of Federal and the synonyms, indicated by the use of (=). Synonyms aid law enforcement officials, importers, exporters, and many others

who routinely use these names by identifying alternative names that may appear in documents and other references.

The species named in these lists were placed there either by the U.S. Fish and Wildlife Service, Department of the Interior, or jointly by that Service and the National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Department of Commerce. References to "Services" in the text of §§ 17.11 and 17.12 refer to those two agencies. The Fish and Wildlife Service maintains the lists through republications and other administrative practices.

No entry to these lists has been added, deleted, or significantly altered by this republication. Such actions must be published as separate documents in the Federal Register.

Minor changes are made in §§ 17.11(d) and 17.12(d) to clarify that some of the data in these lists are provided for the information of the reader and may now be changed without public notice when the annual (October 1) compilation of Title 50 is being done. This procedure will annually save the government several thousand dollars in publication costs in the daily Federal Register by permitting such changes of a nonregulatory nature.

The Service finds for good cause that this document shall be effective upon publication and that notice and public comment are unnecessary. This action is merely a republication of existing, and previously published, requirements. By bringing earlier lists up to date, it will provide more timely guidance to the public. Readers are requested to advise the Service of any errors or omissions, particularly with regard to historic ranges and alternative names in these lists.

Authors

This document was compiled by the staff of the Office of Endangered . Species, U.S. Fish and Wilclife Service. Washington, D.C. 20240 (708/235-1975).

List of Subjects in 50 CFR Part 17

Endangered and threatened species. Dated: July 21, 1983.

J. Craig Poner,

Acting Assistant Secretary for Fish and Wildlife and Parks.

Regulations Promulgation

PART 17-[AMENDED]

Accordingly, the Service amends Part Regulations as follows:

 The authority citation for Part 17 reads as follows:

Authority: Pub. L. 93-205, 87 Stat. 884; Pub. L 95-632, 92 Stat. 3751; Pub. L 96-159, 93 Stat. 1241; and Pub. L. 97-304, 96 Stat. 1411 [16 U.S.C. 1531, et seq.].

2. Revise Subpart B of 50 CFR Part 17 to read as follows:

Subpart B-Lists

§ 17.11 Endangered and threatened wildlife.

- (a) The list in this section contains the names of all species of wildlife which have been determined by the Services to be Endangered or Threatened. It also contains the names of species of wildlife treated as Endangered or Threatened because they are sufficiently similar in appearance to Endangered or Threatened species (see § 17.50 et seq.).
- (b) The columns entitled "Common Name," "Scientific Name," and "Vertebrate Population Where Endangered or Threatened" define the species of wildlife within the meaning of the Act, Thus, differently classified geographic populations of the same vertebrate subspecies or species shall be identified by their differing geographic boundaries, even though the other two columns are identical. The term "Enure" means that all populations throughout the present range of a vertebrate species are listed. Although common names are included, they cannot be relied upon for identification of any specimen, since they may vary greativ in local usage. The Services shall use the most recently accepted scientific name. In cases in which confusion might arise, a synonym(s) will be provided in parentheses. The Services shall rely to the extent practicable on the International Code of Zoological Nomencicuse.
- (c) in the "Status" column the following symbols are used: "E" for Endangered, "T" for Threatened, and "E (or T) (S/A)" for similarity of appearance species.
- (d) The other data in the list are nonfegulatory in nature and are provided for the information of the reader. In the annual revision and compilation of this Title, the following information may be amended without public notice: the spelling of species' names, historical range, footnotes, references to certain other applicable portions of this Title, synonyms, and more current names. In any of these revised enthes, neither the species, as defined in paragraph (b) of this section, and nor its status may be changed without following the procedures of Part 424 of media this Title.
- (e) The "Historic Range" indicates the known general distribution of the

species or subspecies as reported in the nt scientific literature. The present bution may be greatly reduced from this historic range. This column does not imply any limitation on the application of the prohibitions in the Act or implementing rules. Such prohibitions apply to all individuals of the species, wherever found.

(f)(1) A footnote to the Federal Register publication(s) listing or reclassifying a species is indicated under the column "When Listed." Footnote numbers to §§ 17.11 and 17.12 are in the same numerical sequence, since plants and animals may be listed in the same Federal Register document. That document, at least since 1973, includes a statement indicating the basis

for the listing, as well as the effective date(s) of said listing.

(2) The "Special Rules" and "Critical Habitat" columns provide a cross reference to other sections in Parts 17. 222, 226, or 227. The term "NA" (not applicable) appearing in either of these two columns indicates that there are no special rules and/or Critical Habitat for that particular species. However, all other appropriate rules in Parts 17, 217-227, and 402 still apply to that species. In addition, there may be other rules in this Title that relate to such wildlife, e.g., port-of-entry requirements. It is not intended that the references in the "Special Rules" column list all the regulations of the two Services which might apply to the species or to the

regulations of other Federal agencies or State or local governments.

(g) The listing of a particular taxon includes all lower taxonomic units. For example, the genus Hylobates (gibbons) is listed as Endangered throughout its entire range (China, India, and SE Asia); consequently, all species, subspecies, and populations of that genus are considered listed as Endangered for the purposes of the Act. In 1978 (43 FR 6230-6233) the species Halioeetus leucocephalus (bald eagle) was listed as Threatened in "USA (WA, OR, MN, WI, WI. MI)" rather than its entire population: thus, all individuals of the bald eagle found in those five States are considered listed as Threatened for the purposes of the Act.

(h) The "List of Endangered and Threatened Wildlife" is provided below: REF. 17

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WATER QUALITY MANAGEMENT PLAN FOR THE LOWER CUMBERLAND RIVER BASIN

November, 1978

PRODUCED BY
TENNESSEE DEPARTMENT OF PUBLIC HEALTH
DIVISION OF WATER QUALITY CONTROL
309 CAPITOL TOWERS
NASHVILLE, TENNESSEE 37219

Authorization No. 0871; 150 copies printed. This document was printed at a cost of 3399.50, or 22.66 each, to fulfill a requirement of EPA Grant No. P004193010 to the State of Tennessee and Section 208 of the Federal Water Pollution Control Act Amendments of 1972.

Printed by Enviro-Printers, Franklin, Tennessee

TABLE 111 - 2

Domestic Surface Water Supplies In The Lower Cumberland River Basin

	In	Intake Location Coordinates		
				Avera Dai
Water Source	River Mile	Latitude	Longitude	Use (I
East Fork Stones River	44.3	35 ⁰ 49'36"	86 ⁰ 04'28"	0.3 .
Big Marrowbone Creek. Cumberland River	1.1 160.0	36 ⁰ 15'41"	87 ⁰ 03'33"	0.47
Sycamore Creek	-	36 ⁰ 19'36"	87 ⁰ 03'30"	0.3
Brush Creek Cumberland River	1.i 160.7	36 ⁰ 16'14"	87 ⁰ 03'07"	0.0
Harpeth River	36.1	36 ⁰ 06'38"	86 ⁰ 06'48"	0.
Cumberland River	207.6	36 ⁰ 12'30"	86 ⁰ 38'30"	
Cumberland River- Cheatham Lake	172.5	36°08'10"	86 ⁰ 55'15"	2.7230
Cumberland River	200.3	36 ⁰ 14'22"	86 ⁰ 12'52"	7.1290
Cumberland River	193.8	-	-	63.502
Cumberland River	206.3	-	-	35.000
Cumberland River	218.8	36 ⁰ 15'40"	86 ⁰ 38'30"	0.5790
Impounded Reservoir	-	36 ¹³ 04148"	87 ⁰ 24'14"	0.6500
Turnbull Creek	11.1	36 ⁰ 03'30"	87 ⁰ 12'15"	1.2000
Cumberland River	108.3	36 ⁰ 25'25"	87 ⁰ 34'33"	0.4(3)
Cumberland River Big West Fork Creek	132.8 5.5	-	•	9.1710
	East Fork Stones River Big Marrowbone Creek. Cumberland River Sycamore Creek Brush Creek Cumberland River Harpeth River Cumberland River Cumberland River Cumberland River Cumberland River Cumberland River Cumberland River Cumberland River Cumberland River Cumberland River Cumberland River Cumberland River Cumberland River Cumberland River Cumberland River Cumberland River	Water Source East Fork Stones River Big Marrowbone Creek. Cumberland River Brush Creek Cumberland River Harpeth River Cumberland River Cumberland River Cumberland River Cumberland River Cumberland River Cumberland River Cheatham Lake 172.5 Cumberland River 200.3 Cumberland River 193.8 Cumberland River 206.3 Cumberland River 218.8 Impounded Reservoir Turnbull Creek 11.1 Cumberland River 108.3 Cumberland River	Water Source River Mile Latitude East Fork Stones River 44.3 35°49'36" Big Marrowbone Creek. 1.1 1.0 Cumberland River 160.0 36°15'41" Sycamore Creek - 36°19'36" Brush Creek 1.1 1.1 Cumberland River 160.7 36°16'14" Harpeth River 36.1 36°06'38" Cumberland River 207.6 36°012'30" Cumberland River-Cheatham Lake 172.5 36°08'10" Cumberland River 200.3 36°14'22" Cumberland River 206.3 - Cumberland River 218.8 36°15'40" Impounded Reservoir - 36°04'48" Turnbuff Creek 11.1 36°03'30" Cumberland River 108.3 36°25'25" Cumberland River 132.8	Water Source River Mile Latitude Longitude East Fork Stones River 44.3 35°49'36" 86°04'28" Big Marrowbone Creek. 1.1 36°15'41" 87°03'33" Sycamore Creek - 36°19'36" 87°03'30" Brush Creek 1.1 36°19'36" 87°03'30" Brush Creek 1.1 36°16'14" 87°03'07" Harpeth River 36.1 36°06'38" 86°06'48" Cumberland River 207.6 36°12'30" 86°38'30" Cumberland River-Cheatham Lake 172.5 36°08'10" 86°55'15" Cumberland River 200.3 36°14'22" 86°12'52" Cumberland River 193.8 - - Cumberland River 218.8 36°15'40" 86°38'30" Impounded Reservoir - 36°04'48" 87°24'14" Turnbuff Creek 11.1 36°03'30" 87°24'14" Cumberland River 108.3 36°25'25" 87°34'33"

Adams-Cedar Hill	Red River	34.1	36 ⁰ 05'20"	87 ⁰ 35'55"	0.0960
Greenbrier	Impounded Reservoir	-	-	-	0.2810
Springfield	Sulphur Fork Creek	-	36 ⁰ 31'36"	86 ⁰ 52'54"	-
White House Utility District	Cumberland River- Old Hickory Lake	216.5	36 ⁰ 17'50"	86 ⁰ 38'00"	2.0200
Murfreesboro	East Fork Stones River (Spring)	12.3	-	-	5.3050
Smyrna	Stones River (Percy Priest Reservoir)	-	35 ⁰ 59'55"	86 ⁶ 28'45"	1.7230
Carthage	Cumberland River	309.0	36 ⁰ 14'36"	85 ⁰ 56'45"	0.3710
Dover	Cumberland River	88.8	36 ⁰ 29'27"	37 ⁰ 50'22"	0.1360
Gallatin	Cumberland River	239.1	36 ⁰ 20'25"	86 ⁰ 26'25"	2.3900
Hendersonville Utility District	Drakes Creek Cumberland River	3.7 222.1	36 ⁰ 17'45"	86 ⁰ 37'50"	2.1510
Portland	Impounded Reservoir	-	-		0.4330
Westinoreland	Impoundment		36 ⁰ 36'23"	86 ⁰ 29'23''	0.1640
Hartsville	Cumberland River	278.6	36 ⁰ 22'25"	86 ⁰ 10'44"	0.2810
Franklin	Harpeth River	81.5	35 ⁰ 54'30"	86 ⁰ 51'30"	1.9630
Lebanon	Cumberland River	263.0	36 ⁰ 17'57"	86 ⁰ 15'47"	2.718
West Wilson Utility District	Cumberland River	225.6	36 ⁰ 16'32"	86 ⁰ 33'35"	0.8000

PARE LITTIES

Ref 18

REGION: 04 STATE: TN

U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF EMERGENCY AND REMEDIAL RESPONSE C E R C L I S V 1.2

PAGE: 42 RUN DATE: 04/29/87 RUN TIME: 13:14:37

M.2 - SITE MAINTENANCE FORM

		* ACTION:		
EPA ID : TND981473515				
SITE NAME: KENNON SITE (GENESCO)	SOURCE: T	*		_
STREET : WILSON PIKE	CONG DIST: 06	*		_
CITY : BRENTWOOD	ZIP: 37027 * _			*
CNTY NAME: WILLIAMSON	CNTY CODE : 187	*		
LATITUDE : 35/57/20.0	LONGITUDE : 086/45/47.0	*/		//
LL-SOURCE: G	LL-ACCURACY:	• _		
SMSA : 5360	HYDRO UNIT: 05130204	*		
INVENTORY IND: Y REMEDIAL IND: Y REM	MOVAL IND: N FED FAC IND: N	*	_	-
NPL IND: N NPL LISTING DATE:	NPL DELISTING DATE:	*/-		
SITE/SPILL IDS:		*		
RPM NAME: SHAVER	RPM PHONE: 404-347-2234	*		
SITE CLASSIFICATION:	SITE APPROACH:	* —		_
DIOXIN TIER: REG FLD1:	REG FLD2:	*		_
RESP TERM: PENDING () NO FURTHE	ER ACTION ()	* PENDING (_)	NO FURTHER A	CTION (_)
ENF DISP: NO VIABLE RESP PARTY () ENFORCED RESPONSE ()	VOLUNTARY RESPONSE () COST RECOVERY ()	* - -		
SITE DESCRIPTION:				
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		*		
		*		

U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF EMERGENCY AND REMEDIAL RESPONSE C E R C L I S V 1.2

PAGE: 43 RUN DATE: 04/29/87 RUN TIME: 13:14:37

M.2 - PROGRAM MAINTENANCE FORM

				*	ACTION:	-		
SITE:	KENNON SI	(GENESCO)						
EPA ID:	TND9814735	PROGRAM CODE:	H01 PROGRAM	TYPE: *				_ '
PROGRAM	QUALIFIER:	ALIAS LINK :		*			_	
PROGRAM	NAME:	SITE EVALUATION		*				
DESCRIPT	TION:							
				*				
				*			· · · ·	
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U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF EMERGENCY AND REMEDIAL RESPONSE C E R C L I S V 1.2

PAGE: 44 RUN DATE: 04/29/87 RUN TIME: 13:14:37

M.2 - EVENT MAINTENANCE FORM

			* ACTION: _		•
SITE: KENNO PROGRAM: SITE	N SITE (GENESCO) EVALUATION				
EPA ID: TND98	1473515 PROGRAM CODE: H01	EVENT TYPE: DS1			
FMS CODE:	EVENT QUALIFIER :	EVENT LEAD: E	* -		_ *
EVENT NAME:	DISCOVERY	STATUS:	*		_ ,
DESCRIPTION:					
			*		*
			*		
			*		
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ORIGINAL	CURRENT	ACTUAL			
START:	START:	START:	*/_/_	_/_/_	_/_/ *
COMP :	COMP :	COMP : 02/28/86	* _/_/_	_/_/_	_/_/_ *
HQ COMMENT:					
RG COMMENT:			*		·
			*		
COOP AGR #	AMENDMENT # STATUS	STATE X			
		0	*		*

U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF EMERGENCY AND REMEDIAL RESPONSE C E R C L I S V 1.2

PAGE: 45 RUN DATE: 04/29/87 RUN TIME: 13:14:37

M.2 - EVENT MAINTENANCE FORM

			* ACTION: _		
SITE: KENNOI PROGRAM: SITE I	N SITE (GENESCO) EVALUATION				
EPA ID: TND98	1473515 PROGRAM CODE: H01	EVENT TYPE: PA1			
FMS CODE:	EVENT QUALIFIER :	EVENT LEAD: S	* _		- *
EVENT NAME:	PRELIMINARY ASSESSMENT	STATUS:	*		•••
DESCRIPTION:					
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			*		
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ORIGINAL	CURRENT	ACTUAL			
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COMP :	COMP :	COMP : 06/13/86	* _/_/_	_/_/_	_/_/_
HQ COMMENT:					
			*	,	
RG COMMENT:					
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COOP AGR #	AMENDMENT # STATUS	STATE %			
		0	*		

U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF EMERGENCY AND REMEDIAL RESPONSE C E R C L I S V 1.2

PAGE: 46 RUN DATE: 04/29/87 RUN TIME: 13:14:37

M.2 - EVENT MAINTENANCE FORM

			* ACTION: _		
SITE: KENNO PROGRAM: SITE	N SITE (GENESCO) EVALUATION				
EPA ID: TND98	31473515 PROGRAM CODE: HO1	EVENT TYPE: SI1			
FMS CODE:	EVENT QUALIFIER :	EVENT LEAD: S	* -	_	
EVENT NAME:	SITE INSPECTION	STATUS:	*		
DESCRIPTION:					
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			*		
ORIGINAL	CURRENT	ACTUAL			
START:	START:	START:	*/_/	//	//
COMP :	COMP :	COMP : 03/29/87	* _/_/	//	_/_/
HQ COMMENT:					
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RG COMMENT:					
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COOP AGR #	AMENDMENT # STATUS	STATE %			
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U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF EMERGENCY AND REMEDIAL RESPONSE C E R C L I S V 1.2

PAGE: 47 RUN DATE: 04/29/87 RUN TIME: 13:14:37

M.2 - COMMENT MAINTENANCE FORM

:	KENNON SITE (GENESCO)		
ID:	TND981473515		
COMM	ENT	ACTION	
DICH	LOROETHANE, TRICLOROETHYLENE AN	* -	*
D OT	HER CHEMICALS ARE	*	*
BURI	ED IN ABOUT 2 OR 3 COVERED TREN	* –	*
CHES	IN PASTURELAND	*	*
OWNE	D BY A EMMETT KENNON. THIS IS O	* _	*
VER	ABOUT A 2 ACRE	*	*
AREA	. WASTES ARE FROM GENERAL ADHES	* –	*
IVES	, NASHVILLE, TENN.	*	*
A DI	VISION OF GENESCO, INC. NASHVIL	* <u>-</u>	*
LE.	•	k	*
GENE	SCO IS WILLING TO CLEAN UP THE	* –	*
SITE	•	*	*
THE	SITE IS NOW BEING INVESTIGATED	* -	
BY A	CONTRACTOR FOR GENESCO	•	*
AND	TN SUPERFUND.	• –	*
	·	•	*
X	•	*	*
	•	•	*
MIKE	NORMAN, EPA	• -	*
	•	•	*
TWO	FAMILY DRINKING WELLS AND A SPR	<u> </u>	*
ING	IN THE AREA ARE	•	*
KNOW	N TO BE CONTAMINATED. THE FAMIL	• -	*
IES	ARE BEING FURNISHED	•	
	COMMODICAL COMMODICAL	COMMENT DICHLOROETHANE, TRICLOROETHYLENE AN D OTHER CHEMICALS ARE BURIED IN ABOUT 2 OR 3 COVERED TREN CHES IN PASTURELAND OWNED BY A EMMETT KENNON. THIS IS O VER ABOUT A 2 ACRE AREA. WASTES ARE FROM GENERAL ADHES IVES, NASHVILLE, TENN. A DIVISION OF GENESCO, INC. NASHVIL LE. GENESCO IS WILLING TO CLEAN UP THE SITE. THE SITE IS NOW BEING INVESTIGATED BY A CONTRACTOR FOR GENESCO AND TN SUPERFUND.	COMMENT COMMENT DICHLOROETHANE, TRICLOROETHYLENE AN D OTHER CHEMICALS ARE BURIED IN ABOUT 2 OR 3 COVERED TREN CHES IN PASTURELAND OWNED BY A EMMETT KENNON. THIS IS 0 VER ABOUT A 2 ACRE AREA. WASTES ARE FROM GENERAL ADHES IVES, NASHVILLE, TENN. A DIVISION OF GENESCO, INC. NASHVIL LE. GENESCO IS WILLING TO CLEAN UP THE SITE. THE SITE IS NOW BEING INVESTIGATED BY A CONTRACTOR FOR GENESCO AND TN SUPERFUND. X MIKE NORMAN, EPA TWO FAMILY DRINKING WELLS AND A SPR ING IN THE AREA ARE KNOWN TO BE CONTAMINATED. THE FAMIL * ACTION A

U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF EMERGENCY AND REMEDIAL RESPONSE C E R C L I S V 1.2

PAGE: 48
RUN DATE: 04/29/87 PAGE: RUN TIME: 13:14:37

M.2 - COMMENT MAINTENANCE FORM

SITE: KENNON SITE (GENESCO)

EPA ID: TND981473515

NO NO	COMMENT	A	CTION	
013	BOTTLED WATER AND A PUBLIC WATER SU	*	_	*
	PPLY IS ABOUT TO BE CONTRUCTED TO T	*		 *
014	HEM AT GENESCO'S EXPENSE.	*	-	*
		*		*

U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF EMERGENCY AND REMEDIAL RESPONSE C E R C L I S V 1.2

PAGE: 49 RUN DATE: 04/29/87 RUN TIME: 13:14:37

M.2 - REGIONAL UTILITY MAINTENANCE FORM

SITE: KENN	NON SITE (GENESCO)		
EPA ID:	TND981473515		
REG CODE:	HSCH-01	* ACTION: _ *	
DESCRIPTION:	HEAVY METALS	**	
		* *	
DATE1:		* _/_/_	
DATE2:		*//	
DATE3:		*/ *	
FREE FIELD:	* -		
REG CODE:	HSCS-01	* ACTION: _ *	
DESCRIPTION:	SOLVENTS	**	
		* *	
DATE1:		* _/_/_	
DATE2:		*//_	
DATE3:		* <u>_/_/_</u>	
FREE FIELD:	* -		
REG CODE:	HSC1-01	* ACTION: _ *	
DESCRIPTION:	ORGANICS	*	
		*	
DATE1:		*/_/_	
DATE2:		*/_/_	
DATE3:		*/_/_	
FREE FIELD:	*		

U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF EMERGENCY AND REMEDIAL RESPONSE C E R C L I S V 1.2

PAGE: 50 RUN DATE: 04/29/87 RUN TIME: 13:14:37

M.2 - REGIONAL UTILITY MAINTENANCE FORM

SITE: KENN	ON SITE (GENESCO)	
EPA ID:	TND981473515	
REG CODE:	HTD0-01	* ACTION: *
DESCRIPTION:	DRINKING WATER CONTAMINATION OBSERVED	**
		**
DATE1:		* _/_/_
DATE2:		*/_/
DATE3:		*//
FREE FIELD:		*
REG CODE:	HTG0-01	* ACTION: _ *
DESCRIPTION:	GROUND WATER CONTAMINATION OBSERVED	* *
		* *
DATE1:		* _/_/_
DATE2:		*/*
DATE3:		* _/_/_
FREE FIELD:		*
REG CODE:	OPD4-01	* ACTION: _ *
DESCRIPTION:	PIT	*
		**
DATE1:		* _/_/
DATE2:		*//
DATE3:		* _/_/_
FREE FIELD:		*

FREE FIELD: 29.19

U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF EMERGENCY AND REMEDIAL RESPONSE C E R C L I S V 1.2

PAGE: 51 RUN DATE: 04/29/87 RUN TIME: 13:14:37

M.2 - REGIONAL UTILITY MAINTENANCE FORM

	DN SITE (GENESCO) TND981473515	
	4C85-01 CERCLA FY85 COOP. AG.,PA	* ACTION: *
DATE1: DATE2: DATE3: FREE FIELD:		* _/_/_ * _/_/_ * _/_/_
	4PHR-01 PRELIMINARY HAZARD RANKING	* ACTION: *
DATE1: DATE2: DATE3:		* _/_/ * _/_/



TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT CUSTOMS HOUSE 701 BROADWAY NASHVILLE, TENNESSEE 37219-5403

June 10, 1986

Mr. Joel Veater, Project Director Site Screening and Investigations Unit CERCLA 104 Program Region IV, U.S. Environmental Protection Agency 345 Courtland Street Atlanta, GA 30365

Dear Mr. Veater:

As requested by your office I am enclosing the completed Preliminary Assessment for the Kennon (Genesco) Site, Brentwood, Tennessee.

Because of the nature of this site it was necessary for us to proceed expeditiously under our State program. We have issued a Commissioner's Order and the Remedial Investigation is well underway.

If the enclosed is not complete, please advise.

Sincenely,

James C. Ault, Director Division of Superfund

JCA/ah/SPF-ddl

Enclosure

KENNON SITE (GENESCO)

On May 21, 1985 the Tennessee Department of Health & Environment Superfund Section was informed of a potential chemical waste site once used by a division of Genesco, Inc. (General Adhesives). The site is located on a farm in rural Williamson County owned by Emmett N. Kennon. From the date of this first notification, responsible parties have cooperated fully. Genesco has hired a professional consultant firm to do a complete Remedial Investigation/Feasibility Study (to date this has included 30 on site monitoring wells, a geophysical study with both electromagnetic and ground penetrating radar and test pits on site to determine the extent and nature of the dumping).

The Remedial Investigation/Feasibility Study and all other work at the site is being performed in an accelerated manner by the responsible parties. State efforts have concentrated on determining the extent of off site migration of contaminants and supervising on site work by the responsible parties. A Commissioners Order has been issued by the State of Tennessee to insure that adequate, timely, and appropriate actions be initiated to address any environmental and health concerns that may arise due to this site.

SEPA	POTENTIAL HAZAI PRELIMINARY PART 1 - SITE INFORMA	ASSES	SMENT			TIFICA Tu2 5 I i	TION NUMBER	
II. SITE NAME AND LOCATION		<u> </u>						
OT DITE NAME Regal commen crimscrutive nements	(0)	ľ			LOCATION IDENTIFIE	14		
Kennon Site (Genesco)			lilson Pi					ที่อย ดอกด
Brentwood		TN	37027	I	lliamson		187	06
35° 57' 20".	LONGITUDE _86° 45' 47"							
Take I-65 South from Na follow it to Wilson Pik until you go under a ra	shville to Moore's e intersection. Tu	rn rig trance	ht on Wi to site	lson F is at	ike and go bout 30 yds	appr	ox. 1	½ mi.
OT CWINER (II known)		DE STREE	T (Business, mailing,	residentia)				
Emmett Kennon		ļ	84 Sidco	Drive				
Nashville		O4 STATE TN	37216		егерноме мимвел 15 ; 242–1667			
07 OPERATOR (If known and different from owner)			T (Business, meEng.	(esidentic)	······································	·	· · · · · · · · · · · · · · · · · · ·	
Same		1	ame					
Same		Same	11 ZIP CODE	(same			
13 TYPE OF OWNERSHIP (Checkone) OX A. PRIVATE DB. FEDER	A		_ D C.STA	TE 100	COUNTY DE	MUNIC	241	
☐ F. OTHER:	(Agency name)		_			MUNIC	PAL	
14 OWNER/OPERATOR NOTIFICATION ON FILE (C. A. RCRA 3001 DATE RECEIVED: MOI IV. CHARACTERIZATION OF POTENTI	HE DAY YEAR B. UNCONTROL	rator) LED WAST	E SITÉ (CERCLA 1	03 e) DAT	E RECEIVED: 5	21 E	35 c	C. NONE
OT ON SITE INSPECTION XD YES DATE 7, 2, 85 ID NO MONTH DAY YEAR 1-22-86			CTOR (X C. STAT	E D.OTH	IER CO	CTRACTO	£.
CS SITE STATUS/Check one) D.A. ACTIVE D.B. INACTIVE D.C.		TC70	TO ENDIN	O YEATI	L DROKE			
Approximately 800 55 gal of Genesco Inc., waste o extractable organics.	n site is volatile (e mate organi	rials frocs, heavy	om Gen v meta	eral Adhesi Is, and bas	ves, e-nei	a div utral	ision
Waste was dispossed of covered and migration a springs in the area. To contact while the site	in abandoned phosphot this time would be	e thro	ugh grour	ndwate	r. There	are w	ells a	and
V. PRIORITY ASSESSMENT OF PRIORITY FOR INSPECTION (Check pine Il high of			u 2 . Description of the	atama - ^	da	· <u>-</u>		
ØA.HIGH ⊜BM	MEDIUM (Inc. LOW (Inspect on tend		O D NON	٧E	endad, complete current d	ipostanic	or r n)	
VI. INFORMATION AVAILABLE FROM								
lamos of the are	OZ OF LAyenry Olyenia		Divicion	. ce r	unantural	1.	ELEPTIONE	
James CALLEDONSING FOR ASSISSMENT	Ulred		Division		UPERTUNG		15 741	1-3424
James C. Automine	State State	TDH&	E Div. of erfund	F	151 741-3424		5 /20 Maria 64),86_
EPX FIDAL 2070 12 (761)							•	

SPEPA	3	
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POTENTIAL HAZARDOUS WASTE SITE

 LILENT	TEICATION	
UI STATE	ចិន្ត ទំពរ ខែមហ្គម៉ាម៉ាម	
TN		

SO E	PAI			CASSESSMENT EINFORMATION		IN	
II. WASTES	STATES, QUANTITIES, AN	ND CHARACTER	ISTICS				
X) A SOUD	STATES (Check artifet Mody) LI E SLUHRY ER FINES X) F LIOU!O EL LI G GAS	TONS _	Featie guintras vidopiendents	1	ERISTICS IEM PAINEM X. E. SOLU DOIVE LIF INFEC ACTIVE ELIG FLAM STENT X: H. IQUIT.		VE /Ĺ
В ОТНЕЯ	15pocdy)	NO OF DRUMS 2	approx. 800		A. H. IGNIT	ABLE () DIBA N NOTAP 1	PLICABLE
III. WASTE T		<u></u>					
CATEGORY	SUBSTANCE N	AME	O1 GROSS AMOUNT	D2 UNIT OF MEASURE	03 COMMENTS		
SLU	SLUDGE		Х		· •	1. drums of m	ixed
CLW	OILY WASTE		 	 		ostly organic	
SOL	SOLVENTS		X		-	<u> </u>	
PSD	PESTICIDES			 			· · · · · · · · · · · · · · · · · · ·
occ	OTHER ORGANIC CH	HEMICALS		- 			
IOC	INORGANIC CHEMIC			T			
ACD	ACIDS			<u> </u>			
BAS	BASES					_	
MES	HEAVY METALS			<u></u>			·
IV. HAZARD	OUS SUBSTANCES (500 A	apendix for most frequent	rry ciled CAS Numbers)				
01 CATEGORY	02 SUBSTANCE N	IAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD		05 CONCENTRATION	CE MEASURE OF CONCENTRATION
	Arsenic			soil		18	mqq
·-·	toluene			soil		6200	ppm
	1,1,1 - trich			soil		160	ppm
	trichlorothane			soil	·	6.9	ppm
· -	Bis (2-ethy)he	exyl) phtha	late	trenches		940	ppm
	lead			soil	·····	7.6	ppm
	chromium			soil		14	ppm
	naphthalene			trenches		110	ppm
	1,2 - dichlore	thane		soil		11.11	ppm
	ethyl benzene			soil		19.19	ppm
	<u>tetra</u> chloro <u>e</u> th	ane	1	soil		220	ppm
V. FEEDSTO	DCKS (See Appendix to: CAS Numbi	(A/41		<u> </u>		<u> </u>	<u> </u>
CATEGORY			02 CAS NUMBER	CATEGORY	O1 FEEDST	OCK NAME	OZ CAS NUMBER
FDS				FDS			
FDS				FDS			
FDS			\	FDS			
FDS			 	FDS			
VI. SOURCE	S OF INFORMATION ICH	specific references, e.g.,	state files, semple analysis,	##PD#1	·····		 -
			/ F + O.4 + O.F. \				

Letter from the Genesco Company, Inc. (5/21/85) informing state of the site. On site inspection and investigation by state personnel.

POTENTIAL HAZARDOUS WASTE SITE

	TIFICATION
OI STATE	02 SITE NUMBER

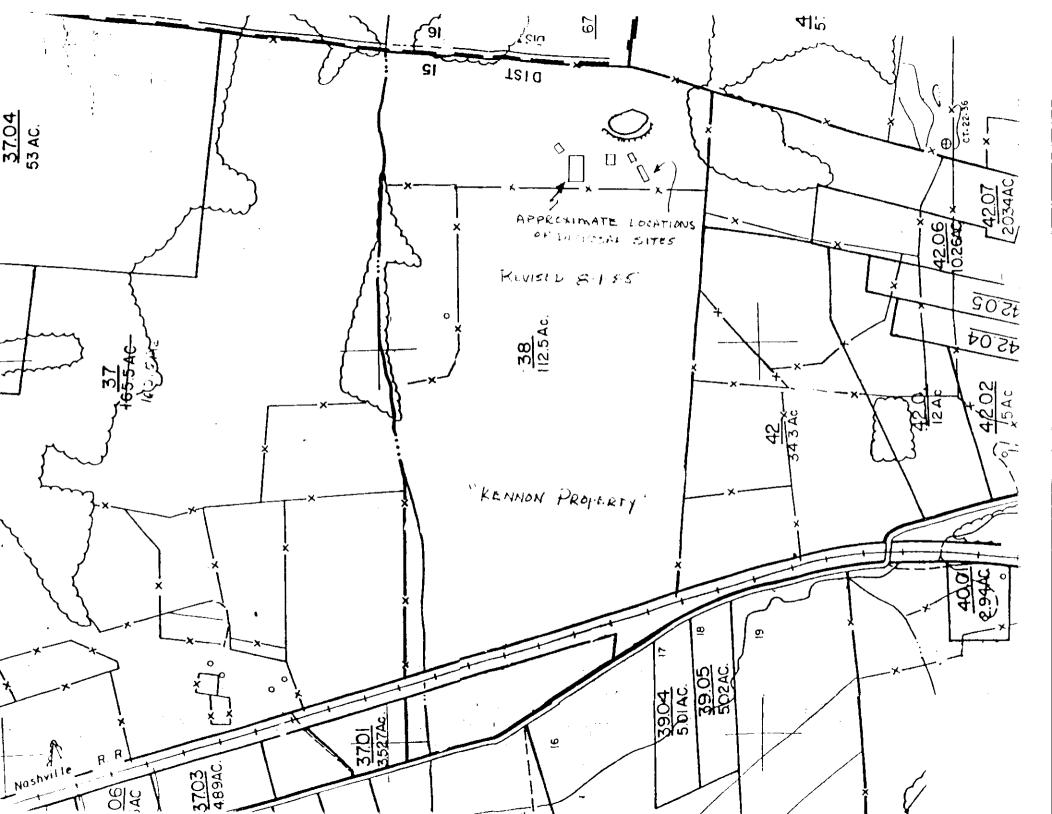
WEPA .		ZARDOUS CONDITIONS AND INCIDEN	TS TN	
II. HAZARDOUS CONDITIO	ONS AND INCIDENTS			
03 POPULATION POTENT	contamination 1 to 100 ally affected a 3 mile radius	021 DBSERVED (DATE 1-22-86) 04 NARRATIVE DESCRIPTION	1) POTENTIAL	X ALLEGED
Initial sampling ated. Sampling	ng of groundwater has g is still on going.	indicated that 2 wells and	1 spring are	contamin-
01 XI B SURFACE WATER 03 POPULATION POTENTI	CONTAMINATION ALLY AFFECTED:	02 CLOBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	L) POTENTIAL	C) ALLEGED
None- Sampling surface water.		shòwn any contaminants migr	rating off sit	e by way of
91 EXC. CONTAMINATION 03 POPULATION POTENTS	OF AIR ALLY AFFECTED:	02 C) OBSERVED (DATE: 1 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	C ALLEGED
None - Site is	covered with soil at	this time.		
01 XI D. FIRE/EXPLOSIVE 03 POPULATION POTENTS	CONDITIONS ALLY AFFECTED:	02 E) OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	D POTENTIAL	D ALLEGED
None - Site is	covered with soil at	this time.		
01 K E. DIRECT CONTAC 03 POPULATION POTENTI		02 (I) OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	C POTENTIAL	☐ ALLEGED
None - Site is	covered with soil at	this time.		·
01 X : F. CONTAMINATION 03 AREA POTENTIALLY A	OF SOIL FFECTED: (Acres)	02 D OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	XI) POTENTIAL	() ALLEGED
	ential for migration on on landscape.	off site to contaminate so	il in the surr	rounding area
01 X G. DRINKING WATER 03 POPULATION POTENTI	CONTAMINATION 1 to 100 ALLY AFFECTED: 3 mile radius	02 () OBSERVED (DATE: 1-22-86	() POTENTIAL	X ALLEGED
	this area was being (used for drinking water. F s are under construction.	People in the	area are on
01 13 H WORKER EXPOS 03 WORKERS POTENTIAL	URE/INJURY LLY AFFECTED:	02 LT OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	D POTENTIAL	□ ALLEGED
Not Applicable				
01 X POPULATION EXPO 03 POPULATION POTENT!	DSURE/INJURY ALLY AFFECTED:	021: OBSERVED (DATE) 04 NARRATIVE DESCRIPTION	LI POTENTIAL	() ALLEGED
None - Site is	covered with soil at	this time.		

SEPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT

	I. IDENTIFICATION						
ı	01	STATE	Ú2	SHE	NUMBER		
	ΙT		•				

II. HAZARDOUS CONDITIONS AND INCIDENTS (Cont.	nu e d)		 	····
01 F. J. DAMAGE TO FLORA 04 NARRATIVE DESCRIPTION	02 OBSERVED (DATE:)	[] POTENTIAL	☐ ALLEGED
None				•
01 (J.K. DAMAGE TO FAUNA 04 NARRATIVE DESCRIPTION (include name(s) of species)	02 D OBSERVED (DATE:	1	☐ POTENTIAL	☐ ALLEGED
None	·			·
01 D. L. CONTAMINATION OF FOOD CHAIN 04 NARRATIVE DESCRIPTION None	02 [] OBSERVED (DATE:)	□ POTENTIAL	☐ ALLEGED
01 C M. UNSTABLE CONTAINMENT OF WASTES (Sont/runofustanding Rejuds/reaking drums)	02 OBSERVED (DATE:	}	D POTENTIAL	□ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: None	04 NARRATIVE DESCRIPTION	•		
01 ① N. DAMAGE TO OFFSITE PROPERTY	02 🗅 OBSERVED (DATE:		□ POTENTIAL	D ALLEGED
04 NARRATIVE DESCRIPTION None	OE II OCCENTED (DATE:	I		is Accepto
none				
01 [] O. CONTAMINATION OF SEWERS, STORM DRAINS 04 NARRATIVE DESCRIPTION	S, WWTP8 02 - OBSERVED (DATE:)	☐ POTENTIAL	☐ ALLEGED
None				
01 K P. ILLEGAL/UNAUTHORIZED DUMPING 04 NARRATIVE DESCRIPTION	02 CI OBSERVED (DATE:	}	D POTENTIAL	X) ALLEGED
Dumping occured in 1978 without	state approval.			
05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL.	OR ALLEGED HAZARDS			
None				
III. TOTAL POPULATION POTENTIALLY AFFECTED:	1 - 100			
IV. COMMENTS				
A full site investigation is on supplied. A State Commissioner				
V. SOURCES OF INFORMATION (Cite specific references e. () , state floe, semple enetysis, reports)			
State files, Reports from Respo and interviews with residents.			tor, Site In	vestigation
	'			



POOR LEGIBILITY

PORTIONS OF THIS DOCUMENT MAY BE UNREADABLE, DUE TO THE QUALITY OF THE ORIGINAL

STATE OF TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT

IN THE MATTER OF:)
GENESCO INC.	DIVISION OF SUPERFUND
EMMETT N. KENNON)
AND ROSE S. KENNON) NO. 86-3013
ROSE S. REIMAGIA)
RESPONDENTS)

COMMISSIONER'S ORDER

Comes now, James E. Word, Commissioner of the Tennessee Department of Health and Environment, and states that:

PARTIES

7

James E. Word is the duly appointed Commissioner of the Tennessee Department of Health and Environment (the "Department").

II.

Respondent, Genesco Inc., is a domestic corporation qualified to do business in Tennessee. Its agent for service of process is W. C. O'Connor whose mailing address is Genesco Park, Nashville, TN 37202.

III.

Respondents, Emmett N. Kennon, and wife, Rose S. Kennon are husband and wife and both are residents of the state of Tennessee. Their mailing address is 2934 Sidoo Drive, Nashville, TN 37204.

JURISDICTION

IV.

Pursuant to T.C.A. Section 68-46-206, the Commissioner is authorized to issue an order to any liable party requiring such party to investigate, identify, contain, and clean-up, including monitoring and maintenance, inactive hazardous substance sites which pose or may pose a danger to public health, safety or the environment because of the release or threatened release of hazardous substances. Pursuant to T.C.A. Section 68-46-215 the Commissioner may issue an Order for correction to the appropriate person, who will then comply with the Order within the time limit specified in the Order.

Respondents are "persons" within the meaning of T.C.A. Section 68-46-104 and each is also a "liable party" within the meaning of T.C.A. Section 68-46-202.

FACTS

VI.

Respondent, Genesco Inc. (hereinafter "Genesco"), is a Tennessee comporation with its executive offices located at Genesco Park, Nashville, TN. Genesco operates in two major industry segments which are footwear and men's apparel. It employs approximately 3,900 persons in Tennessee.

VII.

General Adhesives, formerly known as General Adhesives and Chemical Company, is a division of Genesco Inc. which operates a manufacturing plant at 6100 Centennial Boulevard in Nashville, TN. It manufactures and sells specialty industrial and consumer products which includes adhesives, sealants, and coatings utilizing solvent-based thermoplastic and water-based technologies. It is a hazardous waste generator utilizing the EPA installation identification number TND 001981240. It is a permitted hazardous waste transporter utilizing the EPA installation identification number TND 001367549.

VIII.

Emmett N. Kennon and Rose S. Kennon are owners of certain property described herein. They have owned the property since at least 1976. A portion of said property was used for a period of time in approximately 1978 for the disposal of certain hazardous substances. To the knowledge of the Department it has not been operated as a disposal site since that time and, therefore, said property is an inactive hazardous substance disposal site, (hereinafter, the "site").

IX.

The site is within a 146.8 acre tract located along Wilson Pike in Williamson County, Tennessee, and all of said tract is located within the city limits of Brentwood, Tennessee. The site is approximately two (2) acres.

The site was operated by Respondents, Kennons, as a disposal site for construction waste and for certain other waste described herein which were hazardous substances. At least one or more of the tranches used in the disposal operation were already in existence from the excavation for phosphate mining.

XI.

Genesco notified the Department on or about August 19, 1981 that it was a generator of hazardous waste. It reported that it generated hazardous waste which were described as being "waste, cement and solvents, N.O.S.". The waste was further described as being ignitable (as described in Division rule 1200-1-11-.02 promulgated under the <u>Hazardous Waste Management Act</u>). The waste was reported to be generated at an average rate of 7,400 kilograms per month. The major compounds of the waste were described as being acetone, hexane, toluene, methyl ethyl ketone, and 1, 1, 1 trichloroethylene.

XII.

On or about May 21, 1985 Genesco reported in a letter to the Department, that during the summer and/or fall of 1978, General Adhesives had disposed of approximately eight hundred (800) 55 gallon barrels of waste material in a rural area of Williamson County, Tennessee". The rural disposal area is now known to be the property of Respondents Emmett N. Kennon and Rose S. Kennon. To the knowledge and belief of the Department, the waste was transported to the site by Respondent Genesco and/or by Respondents Kennon.

XIII.

In the same letter referenced above, it was stated that approximately 50 to 80 barrels were buried and the remainder of the waste was poured from the barrels into earthern trenches at the site.

XIV.

It was further stated in the same letter, that the exact amount and contents of the waste material were unknown; however, Genesco believed that the waste contained water-based adhesives and may have contained acetone, ethyl acetone, hexane, methylene chloride, methyl ethyl ketone, rubber solvent, toluene, 1, 1, 1 - trichloroethane, trichloroethylene, and organic fillers.

On or about August 9, 1985 Genesco submitted a plan of investigation of the site to the Department. The plan was revised negarding to Department comments and resubmitted on September 25, 1985. The plan was approved by the Department on or about October 2, 1985. Genesco then began to investigate the extent of any environmental impact including the sampling of waste, soil, and water in and around the site. Water samples included samples of leachate at the site, springs, a seep, and water wells in the vicinity.

XVI.

Laboratory analysis of certain samples reveal the presence of hazardous substances including, but not limited to: arsenic, lead, chromium, trans-1. 2-dichloroethene, 1,1,1 trichloroethane, 1, 1-dichloroethane, 1, 2-dichloroethane, toluene, bis (2-ethyl hexyl) phthalate, naphthalene, ethylbenzene and trichloroethane. The location of a spring and a seep and the laboratory analysis of the same indicate that the contaminants are migrating from the site. The exact analysis results and sampling locations are listed in Tables A, B, C and D of this Order.

TABLE A

Samples Collected January 28, 1986 by Department Staff
at an On-Site Seep Approximately 500 feet Southeast
of the Site

Hazardous	Level of	f	Type of
Substance	Contamina	tion	Sample
Arsenic	.217	ppm	water
Arsenic	18.0	ppm	soil
Lead	.12	ppm	water
Lead	7.6	ppm	soil
Chromium	.15	ppm	water
Chromium	9.3	ppm	soil

TABLE B Samples Collected February 7, 1986 by Department Staff at an Off-Site Spring (Hackett Spring) Approximately 1200 Feet Southeast

of the Site

Hazardous	Level o	Į		Type of
Substances	Contamina	tion	Sample	
Trans -1, 2-dichloroethen	e .07	ppm		water
I, 1, 1 trichloroethane	.013	ppm	1	water
1, 1-dichloroethane	.026	ppm		water

TABLE C
Sample Collected January 22, 1986 by Department
Staff at Pit A from the Disposal Site

Hazardous	Level of		Type of
Substance	Contaminati	Sample	
Arsenic	9	ppm	soil
Chromium	14	ppm	soil
Lead	S	ppm	soil
1, 1-dichloroethane	4.3	ppm	soil
1, 2-dichloroethane	1.2	ppm	soil
Trans -1, 2-dichloroethane	3.3	ppm	lios
Toluene	120	ppm	soil
1, 1, 1-trichloroethane	2.2	ppm	lice

TABLE D

Samples Collected January 22, 1986 by Department

Staff from PIT B from the Disposal Site

Hazardous	Level of		Type of
Substance	Contaminatio	<u>n</u>	Sample
Chromium	14	ppm	waste
Bis (2-ethyl hexyl) phthalate	940	ppm	waste
Naphthalene	110	ppm	waste
Chromium	14	ppm	soil
1, 2-dichlorethane	11.11	ppm	soil
Ethyl benzene	19.19	ppm	soil
Tetrachloroethene	220	ppm	soil
Toluene	6,200	ppm	soil
1, 1, 1-trichloroethane	160	ppm	soil
Trichloroethane	6.9	ppm	soil

Based on the laboratory analysis and the location of these samples, it is the opinion of the Department that hazardous substances have been disposed of at the site, migrated from the site, and that the substances have contaminated ground water. Immediate remedial measures are necessary and appropriate because of potential harm to the public health and environment.

CLAIMS FOR RELIEF

XVIII.

By owning and operating a hazardous substance disposal site and by being the generator of the hazardous substances who at the time of disposal caused such substance to be disposed at the site, each of the Respondents is a "liable party" as defined at T.C.A. Section 68-46-202 which is defined as:

- "(a) The owner or operator of an inactive hazardous substance site;
- (b) Any person who at the time of disposal was the owner or operator of an inactive hazardous substance site;
- (c) Any generator of hazardous substance who at the time of disposal caused such substance to be disposed of at an inactive hazardous substance site; or
- (d) Any transporter of hazardous substances which is disposed of at an inactive hazardous substance site who, at the time of disposal, selected the site of disposal of such substances."

This site is an inactive hazardous substance site within the meaning of T.C.A.

Section 68-46-202 which is defined as "any site or area where hazardous substance disposal has occurred."

XIX.

PREMISES CONSIDERED, I, James E. Word, hereby ORDER the Respondents to comply with the following:

A. The Respondents shall conduct certain IMMEDIATE REMEDIAL MEASURES which must include the following:

- 1. The Respondents must submit a plan to the Department within fifteen (15) days of the receipt of this Order describing how the Respondents will provide a permanent adequate, and petable water source for human consumption and household use to the residents potentially impacted by the site. Until such time as a permanent water supply is provided, the Respondents shall supply adequate drinking water to those persons in the vicinity of the site that they are presently supplying and others deemed appropriate by the Department.
- 2. The Respondents will define the potentially impacted area within the above referenced plan and said plan will include a proposed chronology of activities and a schedule for the completion of activities. The plan will describe how the Respondents will provide and install said water source including any agreements with public utility districts. The plan will further include a well water monitoring program for sampling and testing specified existing wells outside the perimeter of the "potentially impacted area."
- 3. The Respondents will submit a separate plan to the Department within thirty (30) days of the receipt of this Order which will describe how the Respondents will control the source of release of the contaminants to prevent migration of the same. Said plan will define the scope of the source and provide a proposal of activities for immediate remedial measures and a schedule for completion of said activities. The Respondent will implement the plan upon the approval and notice to procede of the Department.
- 4. The Department will review said plans and may require revisions as deemed necessary. Respondents shall implement all immediate remedial action plans as they are approved by the Department.

B. INITIAL ASSESSMENT

 Within sixty (60) days of receipt of this Order, the Respondents shall submit to the Department any existing data available to the Respondents which is pertinent to the assessment of the hazard that the specified site may pose to public health and the environment. This information shall include available data listed in paragraph XIX C2 of this Order and shall be submitted in duplicate.

2. Following receipt of this information, the Department will schedule an initial assessment conference which the Respondents shall attend in the Nashville Office of the Department, Division of Superfund. The Respondents shall be given seven (7) days notice prior to this meeting. The purpose of this conference will be to discuss existing data and determine the need for further investigation, remedial action and/or long term monitoring and maintenance. A schedule for future activities, deemed necessary by the Department, shall be established at this conference. Depending on existing data, the Department may determine that no further action is necessary. In all other cases, the schedule established in this conference will provide the dates by which the activities enumerated herein must be completed.

C. INVESTIGATION PROGRAM

- 1. According to the schedule established in the initial assessment conference, the Respondents shall submit to the Department a proposed Investigation Plan.
- 2. In order to provide an accurate assessment of the hazard posed by the site to public health and the environment and to develop design data for remedial action, the Investigation Plan shall include, but not be limited to, assessment of the following factors:
 - a. Types and quantities of hazardous substances disposed at the site.
 - b. Physical state, analytical summary, toxicological characteristics and other pertinent data defining hazardous substances present at the site.

- c. Methods and extent of the disposal operation including containment methods used, plans and/or photographs of site operation, perimeter and depth of disposal area, and type of disposal operation conducted (open burning, trench, surface impoundment, etc.).
- d. Observed release of contaminants to ground water, surface water or air, including sampling, to determine contaminant concentrations and extent of contaminant migration.
- e. Hydrogeologic factors to determine depth to groundwater, permeability of the unsaturated zone, distance to nearest surface water and slope of the disposal area and intervening terrain.
- f. Population and environment potentially affected:
 - (1.) Ground water use and population served by ground water sources within a three (3) mile radius of the perimeter of contaminant migration.
 - (2.) Surface water use and population served within a three (3) mile reach downstream of the perimeter of contaminant migration.
 - (3.) Population potentially affected by contaminant releases to the air within a four (4) mile radius of the perimeter of contaminant migration.
 - (4.) Distance from the site to sensitive environments such as a natural wetland, critical habitat for an endangered species or a National Wildlife Refuge.
- g. Fire and explosion hazard assessment of the site.
- h. Direct contact hazard assessment of the site.

3. The Investigation Plan must include cost estimates and a proposed schedule for completion of activities involved in the investigation. Following a review of the Plan, the Department may schedule a meeting which Respondents shall attend to discuss any revisions required by the Department. The Respondents will be given seven (7) days notice prior to the meeting. On or before a deadline date established in this review meeting, a revised Investigation Plan shall be submitted by the Respondents to the Department. Upon approval by the Department of the revised Investigation Plan, the Respondents shall begin required activities according to the revised Investigation Plan.

D. REMEDIAL ACTION SELECTION AND IMPLEMENTATION

- 1. Following completion of the investigation activities, a report providing an assessment of the hazard posed by the site to public health and the environment and proposing remedial action alternatives shall be submitted by the Respondents to the Department according to the Investigation Plan schedule. One of the alternatives that shall be addressed in the report shall be the removal of the source of contamination. This report will be referred to as a Hazard Evaluation/Remedial Action report (herein after referred to as "HE/RA"). Remedial action alternatives must include cost estimates and proposed schedules for completion of activities involved in remedial action implementation.
- 2. Assessment of each remedial action alternative must include consideration of the following factors:
 - a. The technological feasibility of each alternative;
 - b. The cost-effectiveness of each alternative;
 - c. The nature of the danger to the public health, safety, and the environment posed by the hazardous substances at the site; and

- d. The extent to which each alternative would achieve the goal of T.C.A. Section 68-46-206(d) which states, in part, "... The goal of any such action shall be cleanup and containment of the site through the elimination of the threat to public health, safety and the environment posed by the hazardous substance."
- 3. Following the Department's review of the HE/RA Report, the Department may schedule a meeting which the Respondents shall attend, to discuss any revisions required by the Department. The Respondents will be given seven (7) days notice prior to the meeting. On or before a deadline date established in this review meeting, a final HE/RA Report shall be submitted to the Department. Upon receipt of approval by the Department of the final HE/RA Report, the Respondents shall begin activities required by the final HE/RA Report, unless the Department determines no further action is necessary.
- 4. The HE/RA activities shall not be considered complete until the Department has reviewed these activities and issued a letter of acceptance to the Respondents.

E. SITE MONITORING AND MAINTENANCE

- 1. Where the Department determines a need for site monitoring and maintenance, the Respondents shall provide a Site Monitoring and Maintenance Plan (herein after referred to as "M/M Pian") which shall include a proposed schedule for completion of required activities and cost estimates within ninety (90) days of receipt of a request for said Plan by the Department.
- 2. Within forty-five (45) days of receipt of this M/M Plan by the Department, the Respondents shall attend a meeting with the Department to discuss any required revisions. On or before a deadline established in this review meeting, a revised M/M Plan shall be submitted by the Respondents to the Department. Upon receipt of approval by the Department, the revised M/M Plan will go into effect.

- F. To the extent practicable, any investigation, identification, containment and clean-up, including monitoring and maintenance, shall be consistent with the national contingency plan promulgated pursuant to Section 105 of Public Law 96-510.
- G. Certain activities may be deemed critical by the Department and shall require observation by the Department. The Respondents shall provide sufficient notice to the Department to allow scheduling of personnel for these activities. The Department also reserves the right to observe any other activities required pursuant to this Order.
- H. Any failure to comply with approved schedules of activities required under this Order shall be a failure to comply with this Order.
- I. In this Order, any reference to the singular includes the plural.
- J. Further, I, James E. Word, do not waive any rights or authority available to me to assess the Respondents for liability for costs, expenditures, civil penalties or damages incurred by the State pursuant to this Order. I also reserve the right to order such further remedial action to be completed by the Respondents where it is determined that further remedial action is needed.

Issued in this office of the Commissioner of the Tennessee Department of Health and Environment this ______ day of March, 1986.

JAMES E. WORD, Commissioner Tennessee Department of Health and Environment

NOTICE OF RIGHTS

Respondents are hereby advised that in accordance with T.C.A. Section 68-46-215 they may secure a review of the necessity for or reasonableness of this Order by filing with the Commissioner, a written petition setting forth the grounds and reasons for objection and asking for a hearing in the matter involved before the Solid Waste Disposal Control Board. The Order shall become final and not subject to review unless the person or persons named herein shall file such petition for a

hearing no later than thirty (30) days after the date such Order is secured. Hearings will be conducted in accordance with the Tennessee Uniform

Administrative Procedures Act.

Correspondence regarding this Order should be addressed to Mary E. Johnston, TERRA Bldg. 6th Floor, Assistant General Counsel, 150 Ninth Avenue, North, Nashville, Tennessee 37203 or telephone (615)741-0657.

Assistant General Counsel

MEJ/djv SWM Order - Genesco

SITE DESUGVERY FORM

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SITE DISCOVERY FORM

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